THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION

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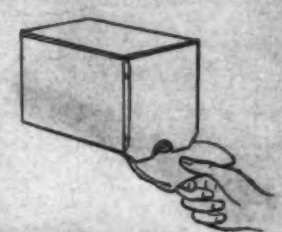

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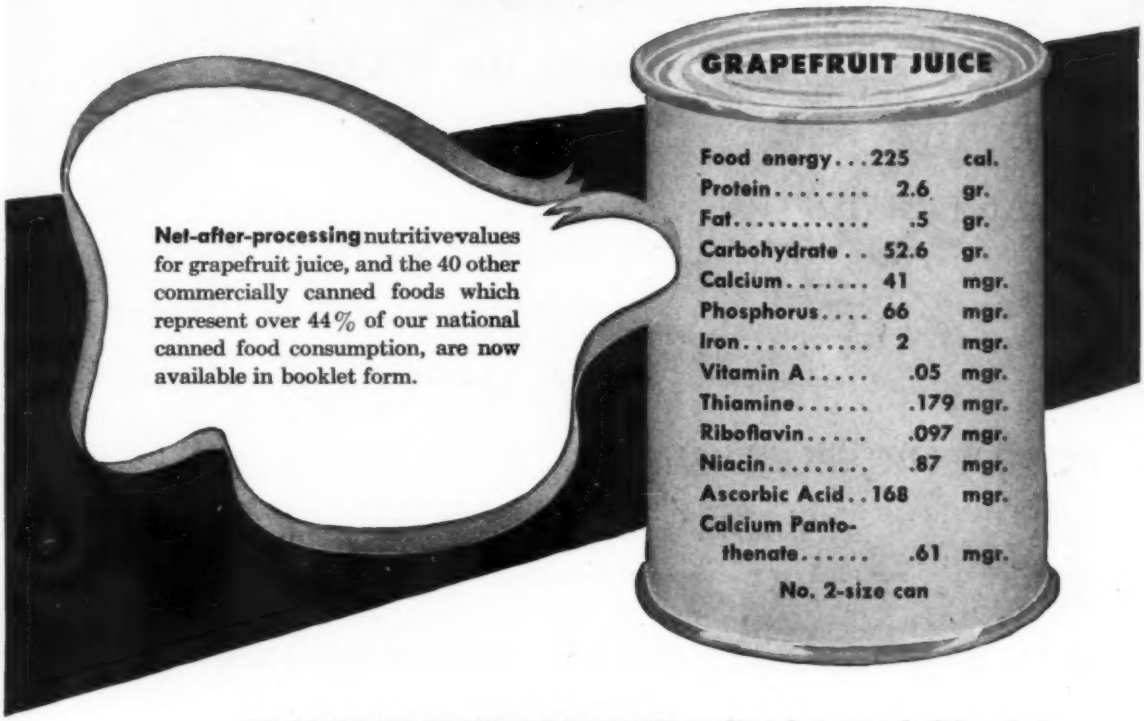

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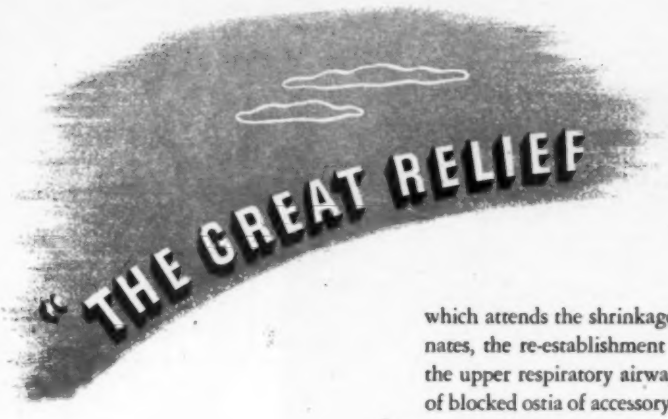

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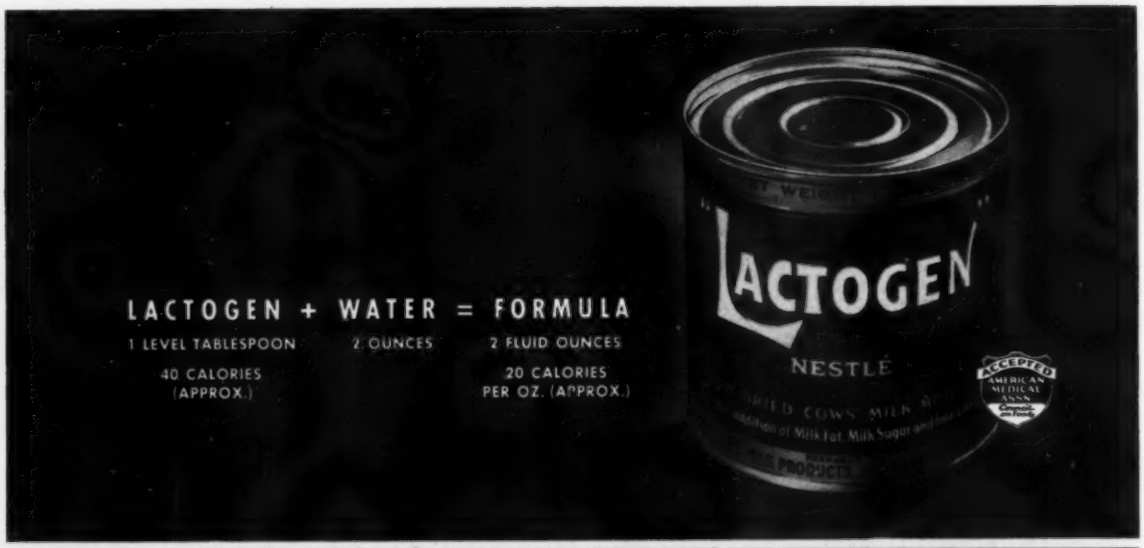

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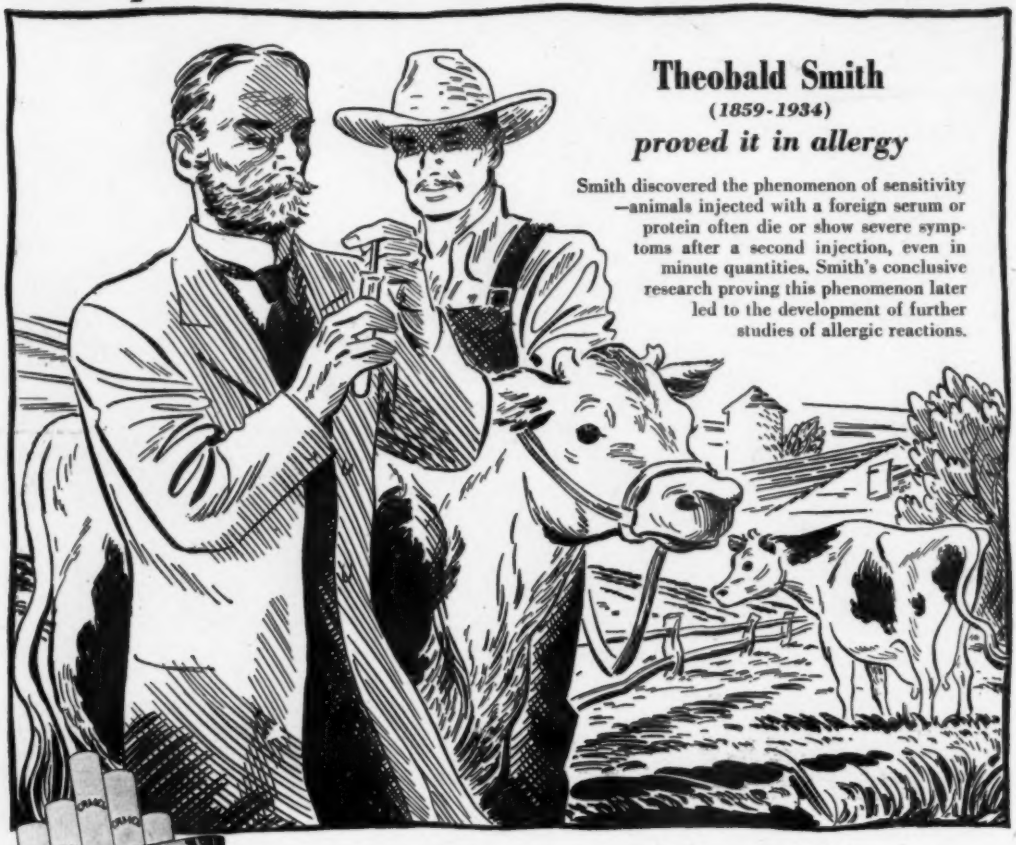

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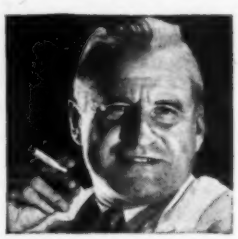

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2. J.A.M.A., 128:490, 1945.
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4. Am. J. Obst. & Gyn., 46:259, 1943.
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SYSTEMIC R

...Even in advanced stages of arthritis

Even in advanced stages of chronic arthritis when many patients consider themselves incurable, a complete systemic rehabilitation program can do much to restore function and abolish pain.

Darthronol is an important integral part of such a rehabilitation program. It combines the repeatedly demonstrated beneficial antiarthritic effects of massive dosage vitamin D with the general systemic actions of eight other vitamins—the need for which is many times greater in arthritics than in normal individuals.

EACH CAPSULE CONTAINS:

Vitamin D (Irradiated Ergosterol)	50,000 U.S.P. Units
Vitamin A (Fish-Liver Oil)	5,000 U.S.P. Units
Ascorbic Acid	75 mg.
Thiamine Hydrochloride	3 mg.
Riboflavin	2 mg.
Pyridoxine Hydrochloride	0.3 mg.
Calcium Pantothenate	1 mg.
Niacinamide	15 mg.
Mixed Tocopherols	4 mg.
(Equivalent to 3 mg. of synthetic Alpha Tocopherol)	

DARTHRONOL

for the Arthritic

J. B. ROERIG AND COMPANY

REHABILITATION

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Mellin's Food—A Milk Modifier

The good results from the use of Mellin's Food over a period of eighty years, unique in the history of infant feeding, is worthy of the careful thought of any physician in the selection of a milk modifier for the preparation of nourishment for babies deprived of breast milk.

Evidence of the effectiveness of Mellin's Food as the modifier is not only apparent during the bottle-feeding period but is observed in later months as the infant becomes a child with an excellent foundation for further rapid growth toward adult life.

Modifications arranged for physicians' use furnish constituents in quantity and of a quality to satisfy the nutritive needs in relation to age and weight, with a supply of liquid to maintain water balance.

If the physician prefers to be the judge of the proportions of milk and water for the individual infant, it is suggested that not less than six level tablespoons of Mellin's Food be used in preparing the full day's feeding mixture. The nutritive value of this quantity of Mellin's Food follows:

Maltose	**24**	**grams**
Dextrins	**8**	**grams**
Proteins	**4.2**	**grams**
Minerals	**1.7**	**grams**

Bowel movements of infants fed on mixtures containing Mellin's Food as the modifier are usually regular with stools of good consistency. Constipation is rare; likewise colic or other digestive disturbances.

Mellin's Food Company, Boston, Mass.

MELLIN'S FOOD: Produced by an infusion of Wheat Flour, Wheat Bran and Malted Barley admixed with Potassium Bicarbonate—consisting essentially of Maltose, Dextrins, Proteins and Mineral Salts.

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The Mattern Mobile SR Unit furnished with either an Air or Oil Insulated X-Ray Tube is a compact dependable and inexpensive X-Ray Unit. Simple to operate and adaptable to your every day diagnostic needs. Furnished with detachable shutter control attachment. Ivory or Black finish. Can be had in two capacities both with a maximum 90 PKV rating at either 30 MA or 60 MA. If desired unit can be furnished on floor tracks with wall mounted bucky panel at extra cost. Unit can also be furnished with tube of sufficient capacity, air circulator and treatment timer for skin therapy.

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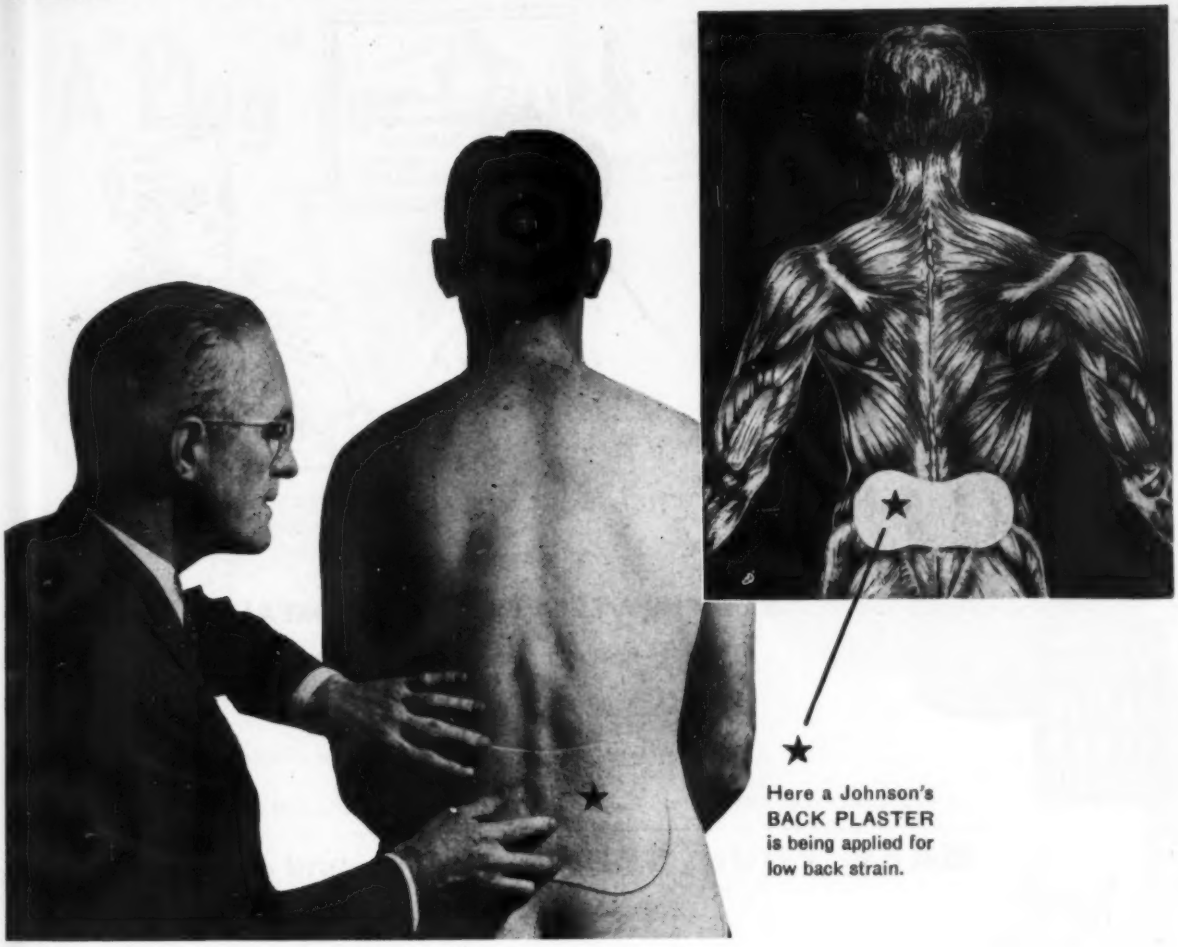

Here a Johnson's BACK PLASTER is being applied for low back strain.

Have you considered these advantages of Johnson's BACK PLASTER?

You will find Johnson's BACK PLASTERS a valuable therapeutic aid for your patients during the interim between osteopathic treatments.

These plasters do *three* jobs. They provide mild counter-irritation which induces local and reflex hyperemia—helping to relieve congestion and muscle pain. They offer a strapping and supporting effect often of value in reducing pain and irritation. They give warmth and protection to the painful area.

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Johnson's BACK PLASTERS are particularly valuable for low back strain, sacroiliac arthritis, myositis, lumbosacral fascitis and intercostal neuralgia.

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Write for liberal free supply of Johnson's BACK PLASTERS and BELLADONNA PLASTERS. Both are helpful in many conditions where backache is a major symptom. Johnson & Johnson, New Brunswick, New Jersey.

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Start the patient on 2 level teaspoonfuls in ½ glass of water, preferably warm or hot, both *before* and *after* each meal and at *bedtime*—also between meals if necessary.

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ELIMINATES BETWEEN MEAL FEEDINGS

Avoids Excessive Use of Milk

Contains No SODA, or Aluminum Hydroxide

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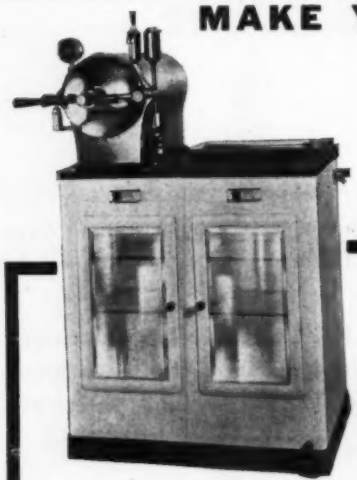
Castle's complete line of office sterilizers enables you to choose the one unit best suited to the required service in your office. Your Castle dealer will be glad to consult with you in its selection. Wilmot Castle Co., 1150 University Ave., Rochester 7, N.Y.



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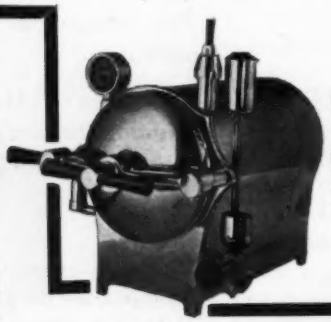
Castle "673" (not shown) . . . same as "669" but with free table space instead of autoclave, which can be added.



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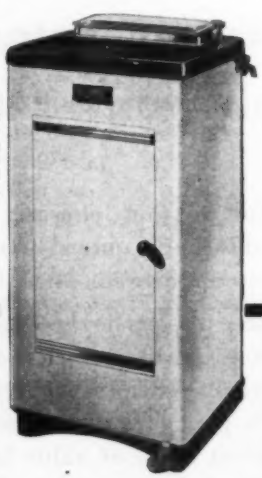

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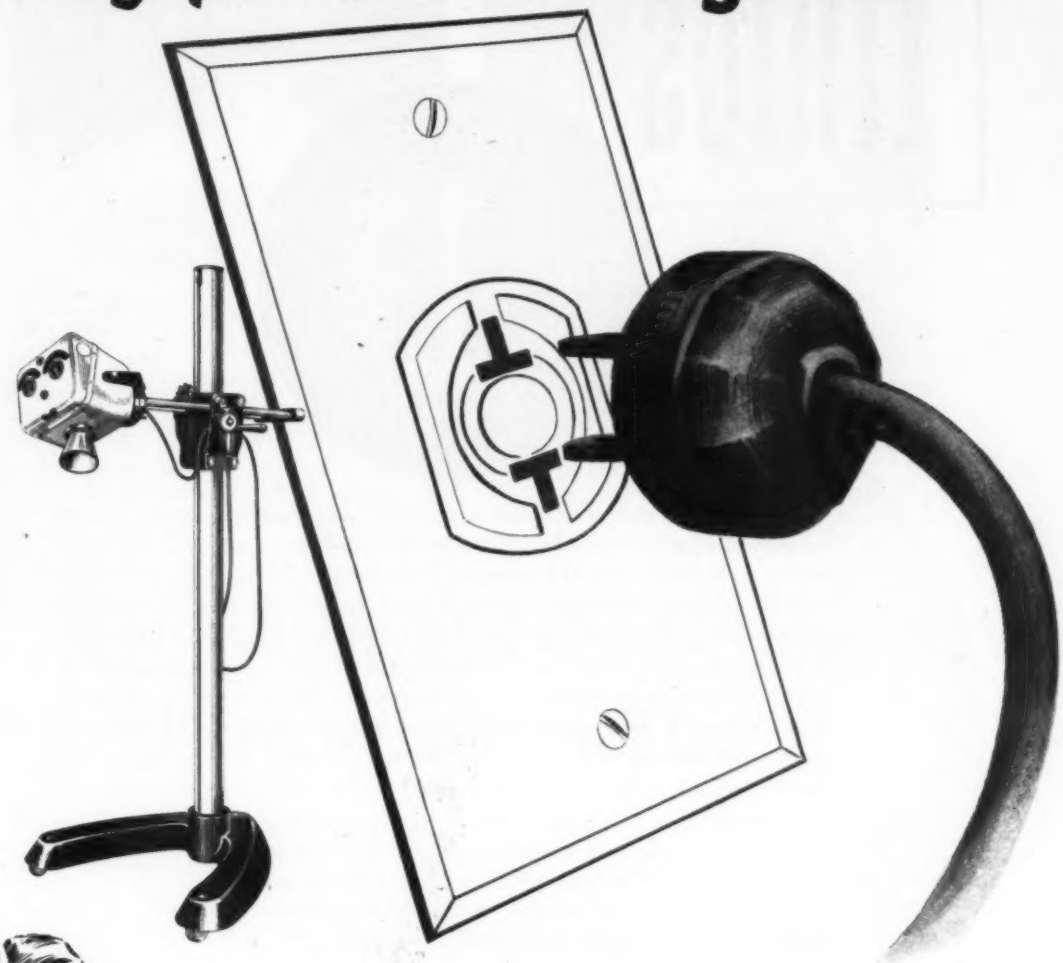

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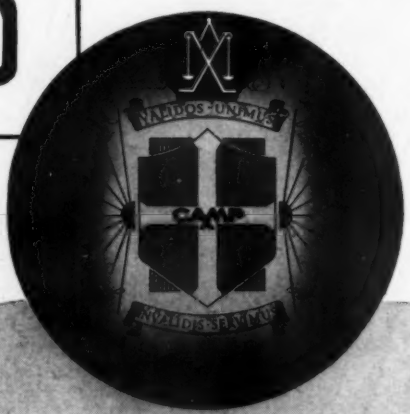

There can be no middle course between the ethics of the medical profession and the temptations of the market place in the field of anatomical supports. Here the standards of the businessman must be elevated to the standards of the doctor because the customer of the businessman is the patient of the doctor. Anything else is "merchandising quackery." We at Camp have for many decades controlled our distribution throughout the recognized retail institutions which like the doctor have earned the respect and confidence of their home communities. No appeal is used in our advertising approach to the consumer which fails to meet the precepts of the profession. We serve the physician and surgeon by living up to our chosen function of supplying scientific supports of the finest quality in full variety at prices based on intrinsic value. We try to insure the precise filling of prescriptions through the regular education and training of fitters. In cooperation with medical and educational public health authorities we play the role our resources permit in promoting better posture and body mechanics. That is our idea of the practical ethical standards which permit the businessman to solicit the recommendation of the doctor.

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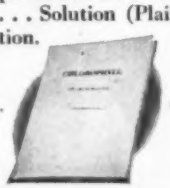

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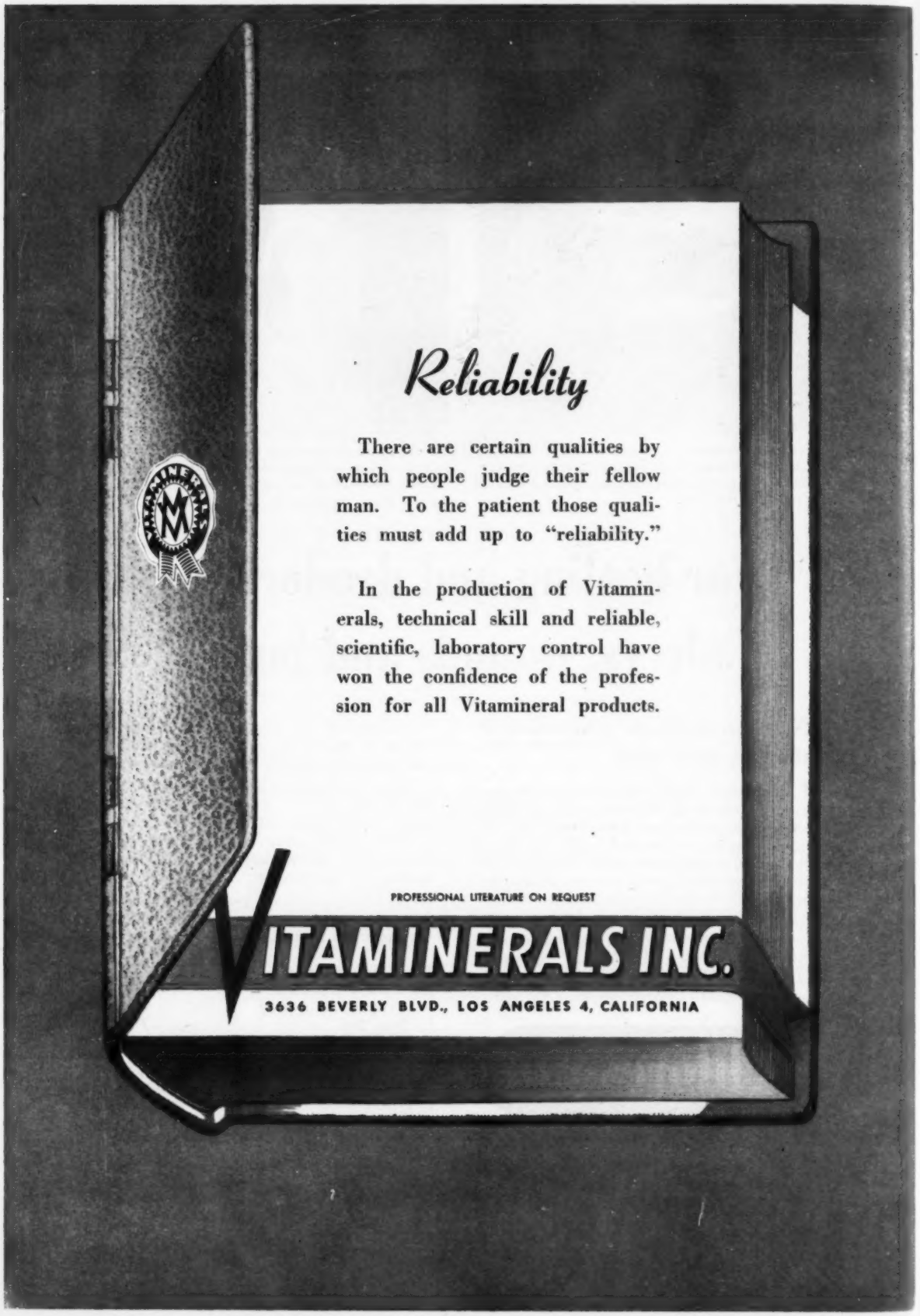
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NEO-CULTOL* gently corrects constipation by inducing restoration of a normal intestinal flora. It implants a viable culture of *Lactobacillus acidophilus* . . . counteracts putrefactive processes . . . avoids formation of the "cathartic habit" with its harmful sequelae, such as griping, flatulence, diarrheic movements . . . and constipational "rebound".

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The majority of patients are most amenable to professional advice at the time of their initial visit to your office. With X-ray apparatus conveniently at hand, your diagnosis can be immediately confirmed and treatment started at once. The patient's effective cooperation in carrying out the indicated regimen may thus be most easily secured.

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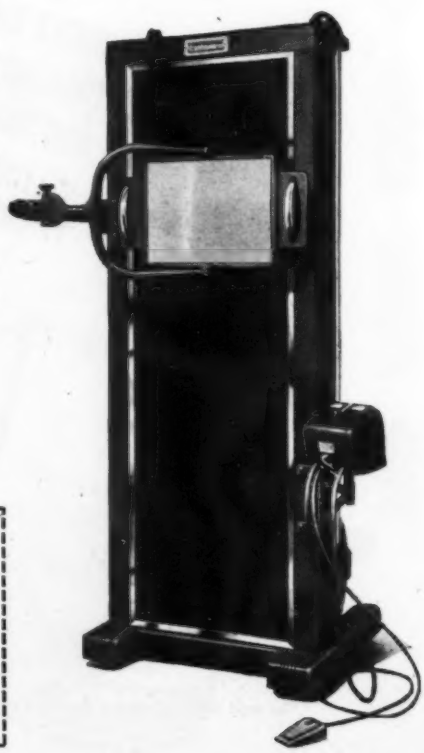

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RIASOL clears disfiguring, psoriatic lesions promptly in so many cases.

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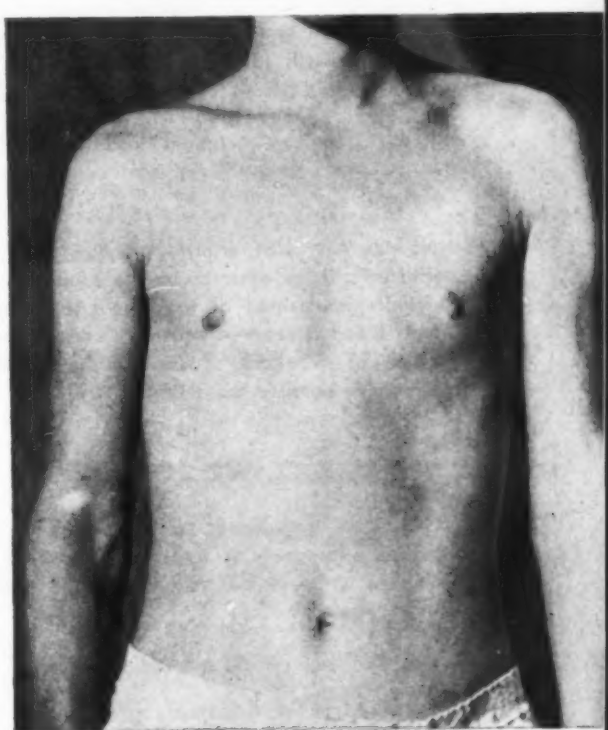

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Arthritis is a symptom of a malfunctioning body. These dysfunctions and imbalances must be overcome before permanent benefit can be secured in any case.

No one has JUST arthritis. In reality, anyone with arthritis or other rheumatic conditions has definite imbalances of the glands and organs and blood stream—frequently without being aware of irritations. These are the causative factors responsible for arthritis.

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Treat the whole body, not just the point of the manifestation.

Secure for each case the maximum permanent benefit—in the minimum length of time.

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With diagnosis to find the causative factors and treatment outlined to overcome those causes—case I (Top) need never become case II (Bottom).

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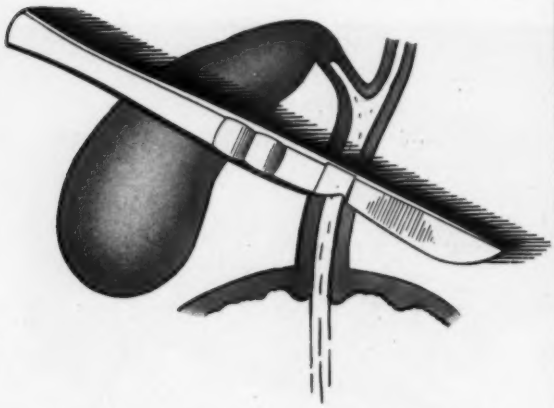

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In chronic, inflammatory conditions of the bile passages without stones, drainage is accomplished by increasing the production and flow of free-flowing, low viscosity bile, employing Decholin for its hydrocholeretic action.

Decholin (dehydrocholic acid) stimulates the production of thin bile by the liver cells, with a resultant cleansing action on the entire biliary tract.

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Approximately one out of every five patients who enters your office is troubled with abnormal tight sphincter muscles of the lower bowel (anus). This condition may cause constipation, hemorrhoids, dysmenorrhea, nervousness and other associated ailments.

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Children's	Adult Size
4 graduated sizes	4 graduated sizes
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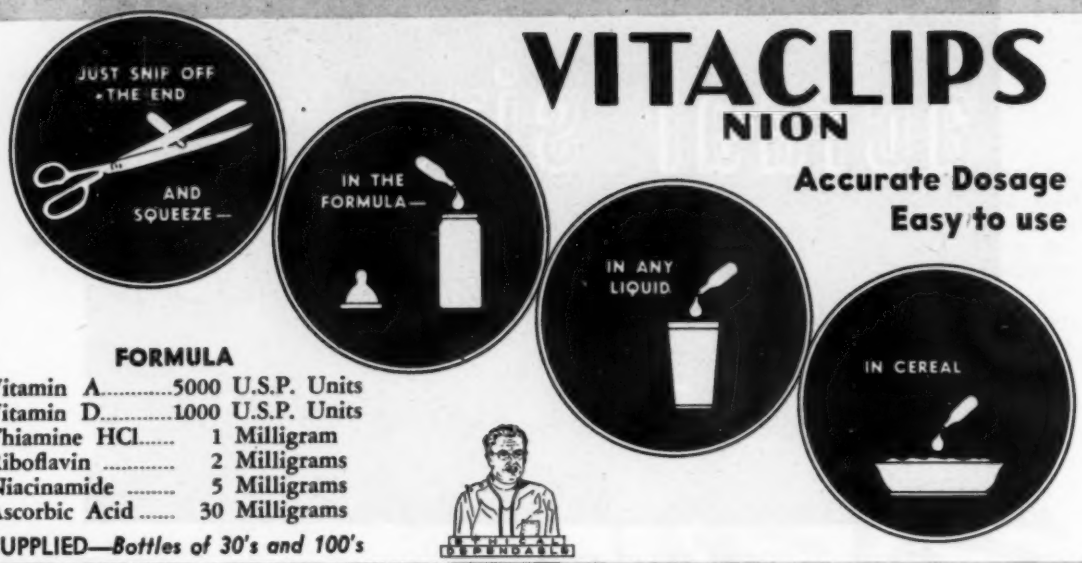

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SUPPLIED—*Bottles of 30's and 100's*

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and G. F. RIDDLE, B.S., R.N., R.P.T.
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Although this book was written for students in physical education, it will have wide appeal to the alert osteopathic physician who realizes the value of therapeutic exercises. Particular emphasis has been placed on the musculature of the extremities, shoulder and hip girdles. In view of this emphasis, the work presents enough anatomy to satisfy the immediate requirements. The art of applying therapeutic exercise is necessarily closely related to kinesiology, the science of bodily movement. For this reason, considerable space is devoted to the classification and general characteristics of muscular action.

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JOSLIN
Treatment of Diabetes Mellitus

By ELLIOTT P. JOSLIN, A.M., M.D., Sc.D.
Clinical Professor of Medicine Emeritus, Harvard Medical School; Medical Director, Baker Clinic, New England Deaconess Hospital
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*Kovacs, R.: Electrotherapy and Light Therapy, 1942, p. 153.

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[1]Human Fertility 10: 25 (Mar.) 1945.

[2]Warner, M. P.: J.A.M.A. 115: 279 (July 27) 1940.

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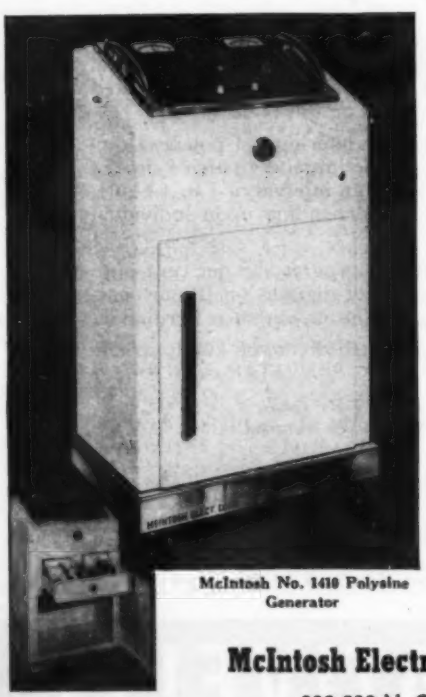

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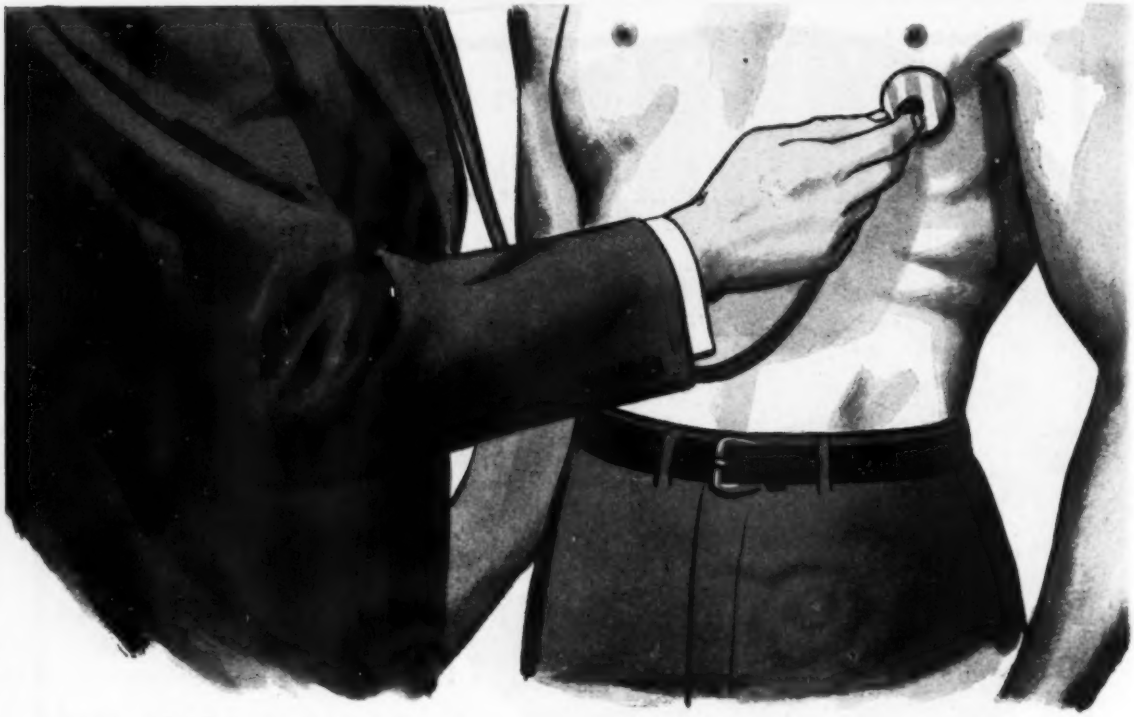

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A Study In Degenerative Diseases, Including Cancer*

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PREFACE

This report is an abstract of an integrated, clinical study of a large group of degenerative diseases, including cancer, from a broad biophysiochemical aspect. Originally undertaken as an independent investigation, stirring implications of information found and correlated in this work have impelled the writer to prepare this report for the attention of other investigators. Accordingly, this account is respectfully tendered as a public service for the consideration of others who are concerned with public health and welfare.

This study has been motivated by experiences of over 22 years during which the writer has acquired persistent impressions that a close relation exists among many degenerative conditions, including cancer. This study has been prompted, also, by an awareness of serious lags in preventive medicine—an awareness of inadequate correlation of discoveries in many sciences that seem to favor the progression of man's "civilized" diseases. Because of implications of these lags and his own responsibility as a physician, the writer has undertaken a search for information that would provide understanding of his recurring impressions of close association of degenerative diseases.

This work has been prepared with the hope that it may help shorten the present lags between discoveries in medical and allied sciences and practice and that through this and other similar work many important, already proved useful discoveries, not yet effectively applied, soon will be more adequately used in the care of the sick, particularly in phases of preventive medicine.

Help has been sought in the works of others, to whom proper credit is given in the larger but not yet published study. Numerous books and writings with diverse viewpoints have been read, and numerous results of scientific research have been used. The writer is grateful to many individuals, bureaus, agencies, and organizations for their kind assistance without which this study and abstract of the report could not have been made.

INTRODUCTION

On September 20, 1947, a tragedy of world-wide interest came to New York City in the death of Ex-Mayor LaGuardia, caused by inoperable cancer of the pancreas. He died at a crucial time in community and world affairs when we so sorely need accumulated wisdom, to which Mr. LaGuardia's experiences might have continued to contribute much good.

Stricken down in his sixty-fourth year, an age which should be considered in man's middle life, his death symbolizes the gross, inefficient pattern of man's life and health.

This inefficiency results from many interacting forces among which are lack of adequate, integrated knowledge of man's total health needs and inertia in correcting mistakes in health situations—mistakes which are discovered through accidental experience and planned research. This presentation is concerned with such matters, particularly those which have to do with degenerative diseases of which cancer, the reported cause of Mr. LaGuardia's death, is a part.

Regarding the over-all picture of man's disabling illnesses, Alexis Carrel,[1] the world-acclaimed scientist, wrote the following observation in his book, "Man the Unknown":

> The hope of humanity lies in the prevention of degenerative and mental diseases, not in the mere care of their symptoms. The progress of medicine will not come from the construction of larger and better hospitals, of larger and better factories for pharmaceutical products. It depends entirely on imagination, on observation of the sick, on meditation and experimentation in the silence of the laboratory. And finally, on the unveiling beyond the proscenium of chemical structures, of the organismal and mental mysteries!

Implications of these words seem strikingly similar to meanings of a broad philosophy that was taught by an earlier trailblazer in modern healing arts, Andrew Tayler Still, the founder of the osteopathic school of medicine.

Dr. Still's concept of the oneness of man's body and functions, like the observation of Alexis Carrel, is, in effect, a protest against modern-day trends in fragmentation of medical knowledge and practice—a protest against compartmentalizing man's structures and functions, one from another. Also, this philosophy places responsibility for the individual's life, health, and happiness upon all who are concerned with public health and welfare.

A broad concept concerning the wholeness of man's body and functions, inspired by Still's philosophical osteopathic teachings and supported by works of many other leaders in medical and allied sciences, has been developed and extended throughout a prolonged period of research.

*Presented at the Forty-Ninth Annual Convention of the New York State Osteopathic Society, New York City, October 5, 1947.

A PREMISE OF CLOSE RELATION BETWEEN MANY DEGENERATIVE DISEASES, INCLUDING CANCER

As an example of a broad Still-inspired concept of man and his infirmities, and as a starting point in this discussion, I submit the premise that there is a close relation between many degenerative diseases, including cancer, in man:

1. Cancer represents a definite portion of the larger area of degenerative body changes.
2. Many degenerative diseases, including cancer, have the same or similar origins.
3. Cancer and many other degenerative diseases occur in close parallel relation to each other, which relation is influenced by certain natural and man-made factors that can be identified; and
4. Using information and skills now at hand, methods for favorably influencing etiologic factors of degenerative diseases, including cancer, can be so established that the incidence of degenerative conditions may be effectively restrained, man's span of happy, useful years of living may be lengthened, and cancer, probably, may be prevented.

IMPRESSIONS OF CLOSE RELATION AND A PHENOMENON PRESENT IN MANY DEGENERATIVE DISEASES, INCLUDING CANCER. THE BASIS OF THIS STUDY

Impression of Close Relation.—This premise of close linkage between many of man's degenerative conditions has developed out of experiences in over 4,000 cases of privately treated chronic diseases with lesions of degenerative nature. These incidents have presented recurrent and persistent impressions of close relation between many retrogressive body states.

Phenomenon in Many Degenerative Conditions.—As part of and strengthening this overall concept of close linkage between degenerative tissue changes, an associated, repetitive phenomenon of functional imbalances of the vegetative or autonomic nervous system, together with certain endocrine disturbances, and alterations in body metabolism, have been observed to occur in great regularity and frequency. In fact, autonomic imbalances have appeared so often in degenerative conditions as to suggest that early syndromes of autonomic dysfunction may have an essential role of "tissue conditioning" that favors later inception and progression of tissue degenerative processes in general.

In some instances, patients with variable group syndromes of autonomic instability and functional disorders, considered in this study, had none or little evidence of degenerative tissue changes. In other situations, patients with established chronic diseases had definite degenerative tissue changes that were preceded in time of occurrence by syndromes of autonomic dysfunctions. In this second group, patients showed a continuance of their earlier autonomic disturbances as part of later, disabling, degenerative disease processes.

In the study of these patients and the reports concerning their family members who had similar conditions, there appeared to be a very close correlation between various functional disorders, degenerative disease conditions, and repetitive appearances of group syndromes of the involuntary nervous system. This close correlation takes on a great meaning when the whole picture is viewed.

From these similarities, an impression has been gained that degenerative conditions, in general, probably represent variable, closely related, progressive phases of a total body disintegration rather than many separate, nonassociated diseases; tissue degenerative processes probably follow earlier states of cellular deficiencies and dysfunctions that condition tissues for retrogressive changes; and these states of "tissue conditioning" are brought about, in addition to other forces, through influences of imbalanced nervous reflexes upon trophicity and functions of tissue cells.

It is my purpose to present, in this study, some roles of autonomic imbalances and some environmental factors that influence them as probable causative factors in degenerative diseases, including cancer, as implied in this concept of their close relation.

Cases Studied in This Investigation.—In this investigation, the records of approximately 4,000 private cases of chronic diseases with lesions of retrogressive tissue changes, accumulated from 1925 to 1947, have been considered. Fair samples, selected at random, in the ratio of about 1 to 20 case records, as an average cross section of chronic disease conditions commonly seen in general medical practice, have been taken for this report. Accidents and acute infections have not been counted in this survey.

In this work, about 200 privately treated cases have been reviewed. They include, among other conditions:

1. Arthritis, including those of degenerative types and rheumatoid diseases, 85
2. Cardiovascular-renal diseases, including arteriosclerosis, heart disease, cerebral hemorrhage, and nephritis, 44
3. Conditions of allergic nature, including asthma, eczema, hay fever, urticaria, and migraine, 36
4. Gastrointestinal diseases, including peptic and duodenal ulcers, irritable colon, and cholecystitis, 26
5. Cancer, 7.

The most frequent causes of death of close family members of patients considered in this study have been:

Cardiovascular-renal diseases	183
Cancer (all types)	95
Diabetes	15
Tuberculosis	13

The study of these morbidity and mortality rates reveal similar relations to those given in some United States Public Health Reports concerning diagnosis of disabling illness, and illnesses from cancer. These relations have been a large motivating factor in this investigation.

The office samples, taken as a cross section of cases commonly seen in an average daily medical practice, are quite similar to cases, not reported here, that have been seen in the Department of Arthritis and Rheumatoid Diseases at the New York Osteopathic Clinic.

Components of the Phenomenon, Group Syndromes of Autonomic Instability, in Many Degenerative Diseases.—The autonomic nervous syndromes that have been most common to many degenerative conditions, as found in these samples, have consisted of functional imbalances between the two divisions of the vegetative or autonomic nervous system, the vagus or parasympathetic and the sympathetic components. In these degenerative diseases with autonomic imbalances, it has been found that the involuntary nervous system dysfunctions have been manifested most frequently as a predominence of influence or activity of the parasympathetic system that is identified as vagotonia. Together with this syndrome of vagotonia, it has been found that many of the associated degenerative con-

ditions have presented evidence of variable degrees of hypothyroidea or thyroid deficiency states.

Associated with these syndromes of vagotonia and hypothyroidea, cholesterol, a normal constituent of the body, has been found commonly to be present in the blood in increased and sometimes in greatly excessive amounts. This finding of hypercholesterolemia appears to be of considerable interest and importance, for numerous investigators have associated abnormal blood levels of cholesterol with many degenerative diseases, including goiter, diseases of the heart, arteriosclerosis, arthritis, diabetes, and many other conditions, as well as cancer. These syndromes of autonomic dysfunctions, therefore, are factors that link many degenerative diseases in close relation.

These conditions of autonomic dysfunctions seen in a considerable number of patients, studied at first hand, have been identified by blood cholesterol studies and basal metabolism tests. In these cases, the blood cholesterol levels usually have been found to be higher and the metabolic rate values usually have been lower in vagotonia and hypothyroidea than they are in normal conditions. However, high emotional states of patients, frequently present during their examinations, have caused basal metabolism rate findings to be considered generally unreliable for clinical purposes. This conclusion is supported by other investigators. On occasion, other tests for determining states of autonomic function also have been used.

The phenomenon consisting of the triad—vagotonia, hypothyroidea, and hypercholesterolemia—and its significance in reference to degenerative diseases as a probable primary tissue-conditioning factor that favors their inception and progression, and as a probable source of tissue retrogression inciting metabolites, to my knowledge has not been reported and explained previously in such broad relation. Some workers, however, have associated nervous imbalances with tissue degeneration; other investigators have linked degenerative tissue changes with abnormal cholesterol metabolism.

QUESTIONS TO BE ANSWERED IN THIS STUDY

The recurrent and persistent impression of close relation between many degenerative diseases and the repetitive occurrence of the phenomena found to be associated with them, present seven distinct problems for solution:

1. Is it possible that there are definite etiologic factors that are common to many degenerative conditions? If so, what are they? Can these factors be identified with the phenomena found in many degenerative diseases—vagotonia, hypothyroidea, and hypercholesterolemia?
2. Can these disease-producing factors be identified or linked with the physical and chemical activities of living body cells?
3. Through what means do these factors act and produce disease conditions? Can these factors provoke tissue changes that differentiate from normal to various degenerative body states?
4. Does cancer result from further degeneration and differentiation of previous existing, less severe tissue changes?
5. Are degenerative conditions and their causes influenced by certain natural and man-made factors that can be identified?
6. Do degenerative conditions and their causes occur in a sort of close parallel geographic relation to each other?
7. How may effective measures be applied so that the etiologic factors of degenerative diseases, including cancer, may be restrained, the incidence of degenerative conditions may be reduced, and man's total health may be raised to its optimum level?

Answers to these seven questions have been sought through some of the devious means open to investigation in medical sciences. Studies and reports of workers from many parts of the world, in addition to my own records and library material, have been carefully examined for reliable information that might be pertinent to this investigation. In this study many discrete and seemingly nonassociated factors concerning retrogressive tissue changes, which apparently have been considered as loosely or nonrelated to each other, and a group of well-founded theories, have been analyzed and synthesized into fairly acceptable explanations as to probable causes and processes of degenerative diseases, including cancer, and into practical plans for their control. Data that support these conclusions appear in substantial detail in the larger report upon which this abstract is based.

SUMMARY AND INTERPRETATIONS OF SOME RESEARCH MATERIAL USED IN THIS STUDY

In a single brief presentation, such as this, one cannot describe adequately a total picture of the wholeness of man, his endless struggle for existence, and the ultimate conclusion of his earthly experience, death, with disabling, degenerative diseases frequently interfused among his life activities. One can hope, however, that through this and other similar occasions, reference to facts already known and to some new ideas may stimulate a renewed and broadened interest in man's autonomic functions, directed for satisfactory and adequate homeostasis. Such consideration may result in more effective phases in preventive medicine and, thus, we may enhance the individual's biologic growth, development, and well-being.

Vagotonia and Hypothyroidea, Their Roles in Tissue-Conditioning That Favor Degenerative Diseases.—Implications of the syndromes of vagotonia and hypothyroidea, as disturbances in homeostasis and as possible conditioning factors in degenerative diseases, have been sought in tissue cells and factors that influence their functions. It has been found that in the individual's constant activities directed towards homeostasis, from conception to death, vagotonia does occur sufficiently often to upset cellular balance and favor degenerative tissue changes. The influence of vagotonia or parasympathetic predominance appears to be one of "tissue conditioning or sensitivity" that is followed by superimposed accumulative tissue retrogressive changes that develop patterns of disability which we interpret as diseases.

This underlying or primary tissue-conditioning process in degenerative diseases appears to be one of allergic nature that is dependent upon the accumulation of relative excess within the tissues of parasympathicomimetic substances as acetylcholine, histamine, and other vagus stimulating factors, which result in an increased permeability of cell membranes, exudation of fluids, and increased alkalinity in the tissues. If these parasympathetic over-activity states occur sufficiently often or are prolonged beyond the cell's ability to recover, various stages of a total cellular disintegration may occur. In connection with these parasympathetic activities, it is interesting to note that cancer is reported not to occur except in tissues of alkaline nature.

In favoring vagus or parasympathetic dominance in tissue activities, deficient thyroid states have a role of major significance. Since thyroid functions, together with other activities of the sympathetic nervous system, are concerned with the defense of the body against infections, deficiency states of the thyrosympathetic system, in general, not only permit vagus overactivity, but they also permit infections and allergic syndromes to be superimposed upon sensitized tissues prepared by vagus stimulation. The slowing of cellular metabolism and the accumulation of fluids in the tissues caused by thyroxin deficiencies are quite similar to tissue changes present in vagotonic or allergic "tissue explosions."

The implication of autonomic imbalance as a primary, conditioning factor in degenerative diseases, which are steadily increasing in frequency about us, is associated in large measure with many social and economic problems of our present time. The emotional stresses associated with industrial problems and World Wars, racial and religious tensions, crowded living conditions with inadequate opportunities for personally-participated-in recreational activities, dietary deficiencies related to soil erosion and errors in food preparation and selection as well as food availability, errors in our sanitation programs which favor atmospheric pollution and faulty water supplies, physical exhaustive states, faulty body conditioning, toxins and toxemia, and other situations which affect structure and functions of tissue cells, in the face of our increasing population—all contribute to the problems of adequate autonomic adjustment, without which man finds survival to be increasingly more difficult.

An outstanding example of mineral deficiency that favors parasympathetic or vagus predominance in the human organism is the widespread deficiency of the vital element, iodine. Without this element the thyroid gland, the sympathetic nervous system, and the cells of the body cannot function in normal manner, and, thus, systemic deficiencies result. Such systemic deficiencies, caused by lack of iodine and other essential cellular elements, are frequently interpreted as constitutional inadequacies. These deficiencies or inadequacies represent imbalances in total autonomic functions including disturbances in the vegetative nervous system, endocrine dysfunctions, nutritional deficiencies, alterations in normal cellular activities, and other factors. The components of constitutional or systemic inadequacies, interacting together, produce a gestalt—a sum-total alteration of normal constitutional functions in an individual that favors degenerative body conditions. This gestalt, therefore, represents a predisposition to disease.

A recent example of mass conditioned deficiencies associated with vegetative imbalances that favor degenerative diseases, a situation of major significance to the health and security of our Nation, deals with reports of physical examinations of Selective Service registrants in World War II. Between December 7, 1941, and December 31, 1943, the National Selective Service System drafted approximately 10,000,000 men for physical examination. Of these, about 3,600,000 registrants were rejected for physical defectiveness. From study of available reports, which include mortality statistics for the same regions and time in which the Selective Service rejections occurred, I identify a substantial number of those rejectees, with physical defects, as having constitutional inadequacies, which are related to vagotonia and hypothyroidea—syndromes which condition these rejectees for later degenerative diseases, including cancer.

Since the body defense mechanism is impaired in vagotonic or hypothyroid states, resulting in systemic and tissue deficiencies, abnormal metabolites may occur and accumulate in previously sensitized or conditioned cellular structures and provoke degenerative tissue changes there. Among such tissue-irritating substances are abnormal metabolites of cholesterol, which have been identified as the third factor in the phenomenon frequently present in many degenerative conditions.

Cholesterol, A Steroid Factor that Links Degenerative Diseases in Close Relation.—Numerous reports reviewed in this study indicate that a disturbance in metabolism of the steroid, cholesterol, is a common causative factor in many degenerative diseases, including cancer, a factor that closely links chronic body states of degenerative nature into a definite, integrated whole pattern of body disintegration. These degenerative conditions are of wide range. Among organic diseases that investigators have closely linked to abnormal cholesterol metabolism are the cardiovascular-renal diseases, pernicious anemia, toxemias of pregnancy, diabetes mellitus, xanthomatosis, osteoarthritis, goiter, cancer, and numerous other degenerative diseases. Hypercholesterolemia is closely related, functionally, with the syndromes of vagotonia and hypothyroidea, the other two factors of the phenomenon reported in this study. It is my opinion that abnormal cholesterol metabolites, acting upon altered tissues, previously conditioned or sensitized through vagotonic overactivities and thyroid deficiency states, provoke those tissues with conditioned deficiencies into degenerative changes which we identify as diseases.

It would seem, therefore, that degenerative diseases, in general, depend upon two major essential factors for their development. The first essential cause appears to be one of tissue susceptibility or conditioning as a primary factor; the second essential determinant appears to be a disturbance in cholesterol metabolism with the formation of abnormal cholesterol metabolites as inciting or causative factors of degenerative tissue changes. This conclusion does not exclude other causes of degenerative diseases. This judgment does, however, point out that it is quite likely that other causes of retrogressive body conditions group themselves either with vagotonia or hypothyroidea as primary tissue conditioning factors that favor degenerative tissue changes, or with abnormal cholesterol metabolites as provokers or inciters of tissue disorganization or retrogression, after the affected tissues have been conditioned or sensitized for them.

Cholesterol—Its Role in Degenerative Diseases.—For the record, I restate that, in this study, neither cholesterol nor its derivatives are considered as sole causes of degenerative diseases. The cholesterol factor is, however, considered as a major cause of their development. The part that cholesterol may have in abnormal tissue changes is likened to the role of the tubercle bacillus. Although a great number of persons are exposed to the tubercle bacillus during their lifetime, comparatively few persons become actually tuberculous. The change from latent tuberculous infection into one of activity depends upon a large number of conditions that favor the activation and growth of the invading organisms. So, too, in chronic or degenerative diseases, including cancer, tissue breakdown with retrogressive changes and abnormal functions depends upon interaction between:

Tissue deficiency states that have been conditioned for degenerative changes by syndromes of vagotonia and hypothyroidea or by toxic substances, nutritional deficiency states, and other causes working through syndromes of autonomic imbalance and disturbed homeostasis; and

Provokers of degenerative changes acting upon conditioned or sensitized tissues as products of body cellular activities, physical or chemical agents from the external environment, viruses, and like substances, and mechanical irritation or trauma that disturbs tissue structure and function, all of which probably harmonize in action with abnormal cholesterol metabolites.

Variable strengths and combinations of these primary and secondary factors, exerted upon the body may produce variable, but closely linked, degenerative body conditions that conform, more or less, to man-described classifications of disease.

Since the hypothesis upon which this study is based includes cancer as a part of the larger field of degenerative diseases, then such a principal cause as is ascribed to cancer should be ascribable to the larger group of degenerative diseases of which cancer is a part, and vice versa. It is my premise that abnormal cholesterol derivatives do meet the conditions of Koch's postulates for degenerative diseases in general, as well as for cancer.

Space limitations do not permit me to discuss the nature of cholesterol, its sources and properties, and hypotheses concerning its function and metabolism. However, a situation may occur in the body economy whereby cholesterol no longer can be used efficiently, and abnormal cholesterol metabolites and other cellular degradation products accumulate and are deposited in body tissues. Deficiency in excretion of cholesterol, whether endogenous or exogenous, results in hypercholesterolemia and lipidoses, and excess amounts of cholesterol replace and destroy normal body tissues which they infiltrate. Such cholesterol-caused diseases include allergies, atherosclerosis of the cardiovascular-renal system, hepatic and biliary tract disease, toxemias of pregnancy, diabetes mellitus, arthritis, xanthomatous diseases of the bone, psoriasis, multiple sclerosis, cancer, and many other conditions. Thus, if efficient ways can be found whereby the body may continue to metabolize cholesterol economically, the life span and general usefulness of an individual may be increased and cholesterol-caused cancer may be effectively lessened.

In reviewing the work of other investigators who have reported on cholesterol metabolism as a factor in degenerative diseases, and in the light of my own experiences, it is maintained in this study that too high plateaus are generally accepted for normal blood cholesterol values. In view of our increased and aging populations which, together with younger members of our communities, are experiencing marked, mounting incidences of degenerative diseases, including cancer, re-evaluation should be given to standards of blood cholesterol in relation to health and disease in persons of all ages. Normal values of blood cholesterol in adults probably range between 150-180 mg. Levels below 150 mg. and above 180 mg. probably represent deviations from normal that may indicate trends towards degenerative diseases.

Knowledge gained from the study of cholesterol metabolites, both those retained in the body, especially in the blood, and those excreted, especially in the urine, will contribute much valuable information as to the mechanism and control of carcinogenesis and production of other cholesterol-caused degenerative diseases. It is anticipated that the routine determination of blood cholesterol levels and of intermediate and excretory products of cholesterol metabolism as everyday procedures in diagnosis, looking forward to more adequate phases of preventive medicine, can contribute to more effective control and restraint of degenerative diseases than now exist.

Some Factors that Influence Cholesterol Metabolism and Contribute to Degenerative Diseases.—Normal cholesterol metabolism, essential in homeostasis, is dependent on normal interaction of the various body systems in the presence of adequate vital elements obtained from man's environment. Faulty interaction or deficiencies in body functions, including effects of environmental deficiencies or errors on body cell activities, may result in abnormal cholesterol metabolites that are capable of provoking degenerative tissue changes, including those of cancer.

Among factors that favor cholesterol-caused degenerative diseases are *lack of available iodine and deficient thyroid states.* The thyroid gland requires for its function adequate amounts of available iodine and other elements, and it exerts a regulatory control on cholesterol metabolism in the liver.

Disturbances in thyroid function result in disturbances in liver reticuloendothelial functions, high blood cholesterol levels, deposition of excess cholesterol in tissues, increase in amino acids capable of accelerating degenerative tissue changes and tumor growths, formation of foam cells and fibrous tissues in cellular structures of the reticuloendothelial system, incomplete inactivation of estrogens, and other dysfunctions leading to abnormal cholesterol metabolites which probably include methylcholanthrene, a markedly active carcinogenic substance.

Hypothyroidea and vagotonia, resulting from lack of available iodine and other elements, are body conditioning factors that favor organic diseases, and these syndromes are more frequent than is generally recognized. As subclinical states which, together with high blood cholesterol levels, are erroneously interpreted as normal findings because of their prevalence in a community, hypothyroidea and vagotonia syndromes are major parts of defective physical conditions classed as constitutional inadequacies which favor degenerative or retrogressive body states.

Through thyroid functions, the ability of an individual to influence the status of his offspring towards patterns of disease bears on geographic and other environmental factors, as does the individual's own resistance to disease.

In addition, a chalone, as an antithyrotrophic hormone, may be an important factor in hereditary tendency towards cholesterol-caused diseases. Such an antithyrotrophic agent may be transmitted from mother to offspring during gestation or nursing periods and it might favor abnormal cholesterol metabolism through retardation or blocking of thyroid functions. An antithyrotrophic chalone may be responsible for retrogression of embryonal cell rests into cancer states in children of early ages. This concept of chalone-favored cancer is projected as a possible factor working with the carcinogenic agent that has been reported transferred in milk of cancerous strains of mice.

Some authorities have proved a close relation between iodine deficiency and goiter and other diseases of the thyroid gland. Other workers have linked goiter with allergies, thyroid deficiency states with abnormal cholesterol metabolism and many degenerative diseases, and goiter and nontoxic nodular goiter with cancer, establishing a geographic incidence and relation, with cancer representing further degenerative changes that follow goiter.

From this study it is concluded that factors which contribute to or which cause thyroid deficiency states and conditions of autonomic imbalance with syndromes of hypothyroidea and vagotonia, thereby favoring abnormal cholesterol metabolism, are responsible for cancer and other degenerative diseases.

Other factors favor cholesterol-caused diseases. They include pituitary and adrenal deficiency states, disturbed reticuloendothelial system with blocking of the reticuloendothelial cells, especially those of the liver and spleen, and deficiencies in vitamin, mineral, lipid, protein, carbohydrate, oxygen, and other nutrient elements.

Many of these factors are influenced by geographic conditions and cultures as patterns of living, and overlapping symptoms of degenerative diseases strongly indicate that the disorders are caused by multiple, rather than by single environmental factors.

Geographic Occurrence of Degenerative Diseases.—A higher incidence of cancer and other degenerative diseases is reported in certain areas of England, Europe, and the United States than is evident in other areas of the same countries. These areas with higher incidence of degenerative diseases conform rather closely with each other in geographic and soil formations and in socioeconomic conditions; they are located at the outlets of large, navigable rivers and in low, washed-out valley lands which are subject to floods. These areas of higher incidence of degenerative diseases are similar to each other in that they have been used considerably by civilization, suggesting that, among other factors, their soils have been exhaustively mined or depleted of essential health-providing minerals. One of these mineral deficiencies, the lack of iodine, causes goiter, a degenerative body state, and personality disorders.

Iodine Deficiencies.—Natural and man-made iodine deficiencies, whether caused by lack of available iodine or halogen substitution and interchange with loss of body iodine, favor hypothyroidea, vagotonia, and hypercholesterolemia—all of which contribute to primary conditioned tissue deficiencies, abnormal cellular metabolites, and degenerative diseases, including cancer.

Modern public health measures, as technics in preventive medicine, include the chemical treatment of water with the halogens—chlorine or fluorine. In addition, bromides have a wide application in modern-day medicine. Therefore, the increasing use of these halogens—which are capable of iodine displacement—to meet the needs of our growing population, in face of increasing mortality rates caused by cancer and other degenerative diseases, presents serious implications. The high rate of cancer in New York City appears to be closely related to lack of adequate available iodine and the presence of iodine-displacing chlorine in its drinking water.

Mineral Deficiencies.—Mineral deficiency states are related to soil erosion, floods, and exhaustive farming which mine the soils of their minerals. The ability of an individual to use minerals is influenced by many autonomic functions. Hence, mineral nutrient deficiency states may be due to errors or deficiencies in either man's external or internal environments.

Atmospheric Pollution.—Accumulating evidence shows that atmospheric pollution due to solid particles, soot and fly ash, and steam is directly related to cancer of the respiratory system. Cleaner areas of large industrial cities have a lower respiratory cancer rate than do dirtier areas of the same cities. Carbon particles of polluted air not only act as cancer irritants per se, but they also combine with and inactivate such gaseous iodine as is present in the atmosphere, thereby lessening the availability of iodine which is so essential for human or plant life. They also cause chronic low-grade thickening in bronchial and lung parenchymal structures and interfere with lung respiratory functions, thereby depressing general tissue cellular respiration and metabolism and favoring formation of abnormal, disease-provoking cholesterol metabolites.

Other Environmental Factors that Favor Degenerative Diseases Including Cancer.—There are many other environmental factors that favor degenerative conditions, including cancer. They include:

1. Heating vegetable and animal fats and oils in air to high temperatures changes them into carcinogenic substances. Errors in methods, home and industrial, in rendering fats for human use may be important factors in development of so-called hereditary cancer and other degenerative diseases, since the faults or virtues of home cooking are frequently handed down by mothers to daughters, from generation to generation in families usually living in the same or similar geographic areas.

2. Tobacco smoke has been reported to be heavily laden with cancer tar.

3. Soft metals used in preparing or marketing food and drinkstuffs may be sources of insidious metallic poisons that, while small in amount, may be accumulative and cause blocking of the reticuloendothelial cells—a conditioning process that favors degenerative diseases, including cancer.

4. Cultural patterns of living bear relation to geographic incidence in degenerative diseases.

Patterns of man's behavior and adjustment make it possible for nonrelated persons, with similar cultures and exposures to the same environmental factors, to develop similar closely related patterns of disease.

It is possible to superimpose the geographic picture and pattern of health upon the fertility pattern of soils. Health may be correlated with the geographic and geologic conditions under which the individual lives, for the health pattern of a region is a reflection of the region's soil fertility pattern which determines nutrition through the food that the soil produces.

The health of a community is influenced, also, by the quality and quantity of its water supply, sunshine, and air.

In addition, and quite pertinent to our modern-day, high-speed activities and tensions, investigators have demonstrated that the substitution of protective foods with displacing diets, consisting of refined foods of commerce that lack elements essential for man's satisfactory homeostasis, will result in degenerative diseases, including cancer.

Among such investigators, Weston Price,[2] in his book, "Nutrition and Physical Degeneration," reports studies of nutrition which he made in several different parts of the world. Price reports that as long as peo-

ples remained sufficiently isolated from our modern civilization and lived in accordance with the nutritional programs which were directed by the accumulated wisdom of their respective groups, they maintained a high degree of immunity to many of our serious diseases. As these primitive peoples gave up their native, protective foods for the refined foods of civilization, they lost their native immunity to disease and acquired the physical degenerative changes and diseases of civilization, including tuberculosis and cancer.

Thus in this study it has been found that:

1. There is a close interaction between elements of the endocrines, reticuloendothelial system, proteins, fats, carbohydrates, vitamins, oxygen, halogens, and minerals in autonomic functions as part of the total body economy.

2. Through this close interaction, there is a close relation between the causes and natures of degenerative diseases.

3. Through environmental influences upon these closely interacting elements, there is a geographic influence on vagotonia, hypothyroidea, and cholesterol metabolism, and on the incidence of degenerative diseases generally; and

4. Through optimum efficiency of interaction of endocrines, reticuloendothelial system, vitamins, oxygen, halogens, and minerals, in the presence of adequate body carbohydrates, fats, and proteins, vegetative functions including cholesterol metabolism might be autonomically regulated at a level satisfactory for efficient homeostasis with resultant good health, increased longevity, and effective restraint of degenerative diseases, including cancer.

RECOMMENDATIONS

From facts and theories that have been studied and correlated in this work, it is my opinion that the basic impression of close relation between many degenerative diseases and their causes can be proved. With this relation established, it is believed that the application of simple procedures, already discovered but not yet adequately used as preventive measures in public health, may contribute an effective restraint on the present high incidence of degenerative diseases, including cancer.

In addition, there is need for correlated research in cancer and other degenerative diseases because environmental factors—natural, geographic, and man-made—some of which have been mentioned in this abstract, are responsible for systemic weaknesses and cancer irritants. For example, accumulating evidence strongly indicates that New York City's high cancer rate may be directly related to the use of its chlorine-treated drinking water, which favors systemic deficiencies, and its smoke-polluted atmosphere, which contains cancer tar. It appears, therefore, that cancer cannot be controlled in New York City, or in other communities with like conditions, unless these disease-causing factors are eliminated.

Therefore, those persons interested in and responsible for public health are urged to promote and integrate the following programs for optimum health of the Nation:

I. *Volunteer Reporting of Chronic or Degenerative Diseases.*—Plans for voluntary reporting of degenerative and chronic diseases, on a nation-wide basis, should be established. Such reports should protect the confidence of the patient-doctor relationship.

Information gained in such reports shuld be compared to information from nation-wide surveys of soil and water supplies. Thus checks and balances may be established quickly in areas which report increases in diseases that can be related to soil, water, and other environmental factors that favor degenerative conditions, including cancer.

II. *Permanent Research in Relations between Nutrition and Health.*—Research should be encouraged to determine relation between malnutrition and impaired health and vigor and between nutrition and maternal and infant health, longevity, and degenerative diseases, including cancer.

III. *Expanded Health Examinations of School Children.*—Programs, supplementing present school child health examinations, should be expanded to provide for periodic radiographic postural studies and evaluation of thyroid functions. Structural analysis of the growing child's bony architecture is not a thing apart from health examinations; it should be an important element of the total diagnostic procedure applied to each child. Hence, postural x-ray studies should be made of each child on his admission to school and at periodic intervals during his school years. Postural studies should include analysis of body-part mechanics, with special consideration to strains and interference with autonomic functions which may favor degenerative diseases, including cancer.

All children should have periodic blood cholesterol and urine steroid tests, in addition to other laboratory procedure, to determine states of thyroid activity and tendencies toward degenerative tissue changes. Institution of correctional measures, where indicated, would aid in effective restraint of pathologic aging and degenerative processes. We cannot start too early in the child's career to check cancer.

IV. *Restraint of Degenerative Diseases, with Correction of Physical and Mental Disturbances.*—Programs in public health technics for slowing the rate of cellular involution and lessening the consequences of pathologic aging and degenerative diseases should be developed and promoted for the benefit of the individual and the community. Such programs should include permanent, nation-wide plans for research in nutrition; soil conservation; standardization of water supplies, water treatment, and foods; prevention of goiter; elimination of atmospheric pollution; education for positive health; recreation, engaged in and not idly watched; and other social adjustments that will lessen emotional and physical stresses and strains.

Present public health programs for correction of physical and mental defects should be continued and expanded, where necessary, to provide adequate diagnostic facilities for detection of nutritional deficiencies, faulty body mechanics, and abnormal biochemistry in individuals. Such plans should include provisions for assisting persons with states of defectiveness, at all ages, towards optimum health and with maximum use of the least impaired capacities. In such programs, provisions should be made for use of the handicapped, to the fullest extent of their capacities, to do useful work as a motivation for recovery.

Included in public health programs, there should be an expansion of present-day physical examinations of school children and follow-up treatments to check trends toward degenerative diseases, rather than wait

for such examinations and treatment until an individual has reached middle life and has already developed definite patterns of organic disease.

Thus the incidence of goiter, cancer, and other degenerative diseases would be lessened and man's years of happy, useful living would be lengthened.

V. *Prevention of Goiter.*—Periodic careful surveys, nation-wide in scope and as part of permanent soil conservation and other public health programs, should be made to ascertain soil and water iodine reserves or deficiencies in the various states.

In addition, adequate diagnostic facilities should be available for each community and for persons of all ages, for purposes of evaluation of individual thyroid functions.

Each community should be made aware of its iodine and other mineral needs and be advised what to do about them. When necessary, public health programs should be expanded to assist local communities for an adequate control of goiter which is essential in restraint of degenerative conditions, including cancer.

VI. *Elimination of Smoke-Caused Atmospheric Pollution.*—The loss of essential, gaseous, atmospheric iodine and the presence of substantial amounts of air-borne carcinogenic hydrocarbons, caused by smoke and steam, should be restrained by adequate smoke-control programs. Thus, the hazard of air-borne irritants capable of inciting degenerative diseases, including cancer, would be lessened in a remarkable manner. Cancer research and treatment, in the absence of adequate smoke-control programs, seem quite futile.

VII. *Soil Conservation with Correction and Prevention of Soil Erosion.*—Permanent careful research should be established to determine relation between soils, nutritional quality of food plants, and human and animal health.

On the soil side, such research should be concerned with soil types, and on the human side, studies in soil science should be related to clinical examinations of humans and animals living off different soil types.

Through application of what is already known, seeds should be selected carefully, the soils should be fortified where necessary, and the most nutritious food possible should be produced for both humans and animals, whereby water and foodstuffs would contain at least the minimum requirements of vitamins, minerals, and other essential nutrients.

Plans for soil conservation should be directed to correction and prevention of soil erosion, and the importance of soil science should be made known to the public through vigorous permanent educational programs.

VIII. *Standardization of Foods Sold in Public Markets.*—Permanent programs should be developed whereby the consumer could be assured that foods sold in public market places contained at least the minimum human and animal requirements of vitamins, minerals, and other nutrients, and were not carriers of disease. Encouragement should be given to retention, enrichment, and fortification of nutrients. In connection with this, and to improve diets on a mass basis, the use of best possible crop seeds and optimum soils should be encouraged.

Such standardized foods, accessible to persons of all groups in the community, would contribute to the capacity for useful work and total health of the individual and help restrain disabling disorders, including cancer.

IX. *Standardization of Water Supplies and Treatment of Water to Prevent Iodine Loss and Spread of Disease.*—Permanent plans should be formulated whereby water for human and husbandry use would be adequate in amounts and quality with no hazards of halogen substitution and loss of essential iodine. Through use of iodine, instead of chlorine or fluorine, in treatment of water, an adequate amount of iodine for restraint of goiter and many cholesterol-caused degenerative diseases would be available for all.

X. *Further Studies Concerning Agents Reported to Be Hazards to Health.*—While wide differences of opinion have been reported among investigators concerning hazards to health, attributed to the widespread use of soft metals in food processing and marketing, the findings unfolded in this study justify further investigation by impartial public health agencies; and their findings should be made known to the public.

Likewise, dangers in processing fats and the use of tobacco, mineral oil, and other substances reported to contain carcinogenic substances, should be investigated further; and the results of the investigations should be published for the attention of all concerned. Thus, further assistance might be given to the restraint of cancer and other degenerative diseases below their present high levels of occurrence.

XI. *Education for Positive Health.*—Vigorous, permanent health education programs leading to positive health habits, programs that will actively interest the public in all matters which pertain to health, should be developed and used. Health education programs can bring to the individual, in language that is understandable to him, knowledge of his body, his physical and mental needs, and what to do about them. Thus technics for doing things that will lead to positive optimum health—a state of being as an outcome of many variables, but which must be earned by each individual doing for himself—should be evolved and demonstrated to the health-security-seeking public.

Programs in education for positive health should include information about food requirements, food practices, relation of soil and water to health, means for goiter prevention, soil conservation, and control of other environmental hazards that threaten man's state of well-being. Health education programs should be planned for different groups and levels of learning. Such plans should stress maternal and infant nutrition so that toxemias of pregnancy may be materially restrained, that healthy infants may be born, and that mothers shall not experience rapid disintegration because of loss of their own vital elements in the complex processes of embryonic growth and infant nursing.

Through vigorous, permanent education programs, the young adult should be assisted to prepare for senescence, learn how to utilize leisure, and minimize the incidence of goiter and many other degenerative conditions, including cancer.

CONCLUSION

The successful restraint of degenerative diseases, including cancer, depends upon adequate coordination and correlation of the recommended, or similar, programs into a whole vast public health project for ascertaining and controlling these diseases at their sources.

In support of this conclusion, may I again refer to the observation of Alexis Carrel,[1] "The hope of humanity lies in the prevention of degenerative and mental diseases, not in the mere care of their symptoms."

May I, also, quote Dr. Andrew Taylor Still,[3] founder of osteopathy, who said, "It is my hope and wish that every [osteopathic physician] will go on and on in search of scientific facts as they relate to the human mechanism and health, and to an ever-extended unfolding of nature's truths and laws."

So, to each of us, to physicians of other schools of medicine, to workers in allied sciences, to educators, to civic leaders, and to all who are concerned with public health and welfare, the challenge of cancer and other degenerative diseases remains a great responsibility.

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The Management of Tumors by the Hospital Team

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Neoplastic disease is gaining the public attention it so rightly deserves. Statistics showing increased mortality constantly presented to the public and the innumerable posters with the motto, "Fight Cancer," are enlightening the masses; at the same time more responsibility is being placed upon the shoulders of the physician.

In the Detroit Osteopathic Hospital alone during the past year 3,107 specimens were examined by the Department of Pathology. Of this number, 464 cases of tumor were diagnosed. This means that 14.9 per cent of all pathology seen in our laboratory proved to be neoplastic. One hundred and three cases of tumor were found to be malignant. This means that about 22 per cent of all the tumors seen were carcinoma or sarcoma. It also means that we demonstrate 1.2 cases of tumor per day, and a case of malignancy about every fourth day. This figure does not include the great number of leukemias, precancerous lesions, or the hundreds of tumors never seen in the laboratory. Now this figure of 464 cases of tumor per year may seem rather small, but if this sum or a fraction of the sum is multiplied by 63, the number of hospitals approved for the training of interns by the American Osteopathic Association, the sum is considerable. If to this is added the number of cases taken care of in registered osteopathic hospitals, of which there are 112, the sum becomes substantial. Approaching these figures from a somewhat different angle, our laboratory services approximately 250 physicians in the Detroit area. Thus, one of these physicians is seeing at least 1 tumor every day. If this number is again multiplied by the number of osteopathic physicians in the country, the enormity of the prevalence of neoplastic disease is at once apparent.

With this volume of neoplastic disease, the osteopathic profession must make a much more adequate attempt to diagnose these tumors at the earliest possible moment, and when diagnosed, to treat them in a manner much less haphazard than that which prevails in all of the branches of medicine. These are definite problems that must be considered in every osteopathic hospital, and they must be considered at once.

In many large institutions, tumor clinics have been established at which individuals approaching the cancerous age, or anyone wishing to be examined for the presence of tumor, may present themselves for such examination free of charge or for a very minimal sum. A hospital team then proceeds to examine all systems of the body. We would like to encourage this procedure among our osteopathic institutions, since we feel that this is one of the best ways of promoting the public welfare. The community will soon come to realize that osteopathic medicine includes more than manipulation of the spine which is so frequently and infamously referred to as "rubbing."

In answer to this challenge, we would like to present the idea of the management of tumors by the hospital team as it is being carried out in some of the large M.D. institutions, and in a few of our osteopathic hospitals. Let us observe the objectives of the hospital team more closely.

The first objective of such a team is to make the general practitioner alert to the presence of tumor. Someone has said that suspicion represents two-thirds of diagnosis. Without the cultivation of suspicion, diagnosis is frequently superficial and incorrect.

The second objective is to speed the process of diagnosis and to encourage treatment at the earliest possible moment. This may be done by pressure of such a hospital group on the general staff in the direction of higher hospital standards. At the same time, it may be done by increasing the number of opinions given on one case, and thus increasing the likelihood of a correct diagnosis.

Its third objective should be to recommend diagnostic procedures in cases in which the diagnosis may not be apparent from the clinical investigation. A general practitioner sometimes is unaware of new developments in the specialties which are important diagnostic aids.

A fourth objective is the establishment of treatment which is most beneficial. The old adage that two heads are usually better than one holds true in the development of a program of treatment.

A fifth objective is to obtain and keep statistical records of the cases of tumor diagnosed and treated. We would especially like to emphasize this point, since if there is any fault of the osteopathic profession, it has been a failure to keep and produce adequate statistics and records.

The sixth and last objective is to provide a diagnostic service to individuals not referred by individual physicians who wish to be examined periodically for the presence of tumor. These are the objectives that

each member of the team should recognize and try to attain.

The composition of such a team may be very simple, or it may be quite complex, depending on the number designated as the team for the management of tumors. Two individuals may comprise a team in the small town, or the team may represent each department head of the hospital staff, and may thus number twenty or thirty in some of the larger institutions. Of all these men upon the team, an alert general practitioner is the most important. He is the man that introduces the patient to the hospital team, and it is he who must make the tentative diagnosis. Then may follow in any order the general surgeon, the orthopedist, the radiologist, the pathologist, the internist, the dermatologist, or any other specialist. All of these individuals must necessarily look at the patient in differing lights, and thus diagnosis may be more nearly correct and the management of the patient considerably better. As such a team grows, a plastic surgeon may be included. Various surgical specialists, such as one interested in gastrointestinal surgery, may be added. A gynecologist, an endocrinologist and so on may be added until nearly every specialty is included.

The mechanics of the use of such a hospital team may be as follows: The group thus formed may decide to meet twice weekly. For instance, a Tuesday and a Friday morning may be chosen. The length of time required may be limited to 15 minutes at the start, or perhaps 30 minutes to 1 hour. The general practitioner with a patient developing a swelling of any type should be encouraged to bring the individual before the hospital team. He should come with as complete a history and laboratory work-up as possible without delay. The history should be quickly read before the patient is presented to the group. The group then, in a very cooperative spirit, should note any incompleteness or irregularity in the history, make notes of the same, and in the 5 or 10 minutes during which the patient is before the hospital group, these points of discrepancy should be eliminated and the history should be completed with all physical findings checked. The patient may then be dismissed, but asked to remain within the building. The team can then discuss the case, and the advisability of further diagnostic procedures; or, if the diagnosis has been firmly established, the immediate course of treatment could be planned. Should biopsy be required, the biopsy procedure of choice should be planned and may be instituted immediately since the patient is still within the building. We would like to emphasize the planning of biopsy procedure. This may seem quite a simple thing, and an entire waste of time. However, we repeatedly receive necrotic tissue which sloughs from the surface of tumors and must disappoint the surgeon who is usually a bit angry with the pathologist for his report. However, the pathologist can report only what he sees, and thus a planned biopsy of proper depth and location will give the pathologist an opportunity to evaluate a lesion accurately and quickly. This will save the patient time, money, and discomfort.

It may then be decided by the group that the patient's history is to be presented at the following meeting for a discussion of treatment, or treatment may be decided upon immediately without waiting for the pathologist's report. This may be done since several courses of treatment may be planned on the basis of the anticipated report. Thus treatment which has been carefully thought out by a group of two or more individuals is established within a period of 1 week.

With treatment outlined, the patient may be asked to return depending on the nature of the neoplasm at intervals of weeks or similar periods, and will be examined briefly by the team and any changes in treatment immediately made. The statistics should be recorded carefully for the area serviced by the hospital team, and a yearly report should be presented to the group. This report should be scrutinized in an effort to learn any bit of information which might prove valuable in the treatment of neoplastic disease.

As an example of the workability of such a hospital team, we would like to present a hypothetical case. A young man, 17 years of age, enters the office of a general practitioner complaining of pain and swelling in the ankle. The patient may give as a history of the chief complaint, activities in a high school athletic event with trauma to the ankle. The past personal history may be entirely normal, the personal habits excellent, the family history not significant, and a cursory physical examination may demonstrate little of value. Examinaion of the ankle may reveal a swelling of the medial malleolus of the tibia extending somewhat above it with fluctuation and extreme tenderness and inflammation of the soft tissues about the malleolus. Pain may be intermittent or constant. The pulse rate may be increased and a low grade fever present. Otherwise the physical examination may be inconsequential. A blood count at the time of first study may show a leukocyte count of 14,000 per cubic millimeter with predominance of mature and immature polymorphonuclear leukocytes. The remainder of the count may fall within normal limits. A blood sedimentation rate may prove to be increased to 20 mm. in an hour.

Without the assistance of the hospital team, the general practitioner may lance the swelling whereupon drainage would occur simulating that derived from an osteomyelitis. Treated as such, this condition would continue for a period of 4 to 6 months before the metastatic aspects of Ewing's tumor became established and the massive neoplastic growth of the tibia indicate the proper diagnosis. Tumor treatment initiated at this late date would be hopeless.

Under the mechanics of the hospital team, the general practitioner would present this case history with his tentative diagnosis of osteomyelitis. If the team included a radiologist, an orthopedist or a pathologist, the possibility of Ewing's tumor or osteogenic sarcoma may be recognized immediately. X-ray diagnosis with the patient still within the building would be attempted and perhaps the diagnosis made. During the same session, the radiologist, the orthopedist, the general surgeon, and the pathologist would then plan the biopsy procedure indicated, or may decide against it on the basis of extreme vascularity, and advise instead amputation of the limb immediately. Thus within two or three days the patient would be hospitalized, amputation or deep therapy irradiation begun, and the possibility of cure greatly increased. In a good many instances this immediate effort by the hospital team might meet with failure. But this failure is only partial failure since the hospital team may be of great service to the patient that is incurable.

To continue the example, should this patient develop metastasis to the lungs and pelvis, the team upon

review of the case, perhaps from 2 weeks to 4 months later, would be called upon to help alleviate the intractable pain. At this point, the radiologist may offer considerable relief of the chest pain while the anesthetist by spinal injection of alcohol could produce anesthesia. Should this treatment fail to alleviate the pain in the terminal stages, the orthopedist might be called upon to perform chordotomy and the internist to plan for the care of the vegetative body thus produced by loss of voluntary motion and loss of control of micturition and defecation. Thus the hospital team for the management of tumors has aided in the rapid diagnosis of the tumor; it has increased the chance of recovery by providing a greater number of opinions and concerted effort; and lastly, it has alleviated much suffering in those cases which cannot be salvaged.

To summarize briefly, we of the osteopathic profession see enormous numbers of tumors each year. This number is becoming increasingly greater and the osteopathic profession must provide increasingly better service to the patient with neoplastic disease. The formation of a hospital team does serve to establish early and correct diagnosis, early and complete treatment because it provides a group of individuals, each looking at tumor from a slightly different point of view. Not only does the patient benefit from such a hospital team, but also the profession benefits through higher standards and better procedures, and also by establishment of statistical records and experience with various forms of treatment. We would like to recommend the establishment of a hospital team by every small hospital, clinic, or professional group.

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A Clinical and Pathological Study of Pigmented Tumors

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Pigmented tumors or melanomas form an interesting group in oncology. No other tumors have caused so much confusion and differences of opinion. The present study was made at the American Oncologic Hospital, Philadelphia, and covers all pigmented tumors examined, both clinically and pathologically, for the past 15 years.

In the review of literature we find that Hippocrates was the first physician to mention this group of tumors in his writings. From the clinical point of view, J. W. Dawson[1] gives a very satisfactory classification of melanotic tumors:

1. Nevus, giving evidence of an increase in size or in darkening of pigmentation.
2. Melanoma, showing well-developed tumor in local lesion.
3. Melanomas with involvement of regional lymph nodes.
4. Generalized melanoma—melanosis.

The pigmented nevi have also been grouped into two divisions, hard and soft nevi:

Hard nevi—those in which the epidermis is changed.

Soft nevi—those in which the nevi cells are present in the subepidermal tissues.

Pigmented tumors may arise wherever pigment-producing cells exist. They are found most commonly in the skin and eye, and less frequently the pia mater, adrenals, and intestines may be the site of the primary tumor.[2]

Some[3,4] believe that pigmented tumors arise in relation to neuroepithelial derivatives of end organs. Pigmented tumors arising from the retina are usually malignant.[5] The benign form found in the skin is known as a nevus while the malignant form is known as a malignant melanoma.[6]

Nevi may be localized or generalized, unilateral or bilateral, smooth or verrucous, pigmented or non-pigmented, single or multiple, flat or raised, cellular or vascular. Nevi are usually present at birth, may not appear for some years and sometimes not until late in life. After they reach a certain size, they usually remain stationary.[7]

The pigmented nevi include ephelides (freckles), nevi spili, lentigines and raised pigmented moles. It is now believed that mongolian spots and blue nevi are special types of pigmented nevi. The pigmented nevus, therefore, is characterized by the presence of nevi cells in the corium, which are more or less pigmented.

As to the mode or origin of the pigment, Ewing[8] believes that melanin is a product of special metabolic function of the cell and that it is not formed out of blood pigment.

Fig. 1a Fig. 1b

Figs. 1a and 1b.—(Table I, Case 9) Malignant melanoma of the face measuring 12 cm. in a male 77 years of age. Patient died 17 months after removal of tumor.

Fig. 2a Fig. 2b

Figs. 2a and 2b.—(Table I, Case 3) Metastasis from malignant melanoma of the eye. The eye was removed elsewhere, prior to observation at this hospital. Patient died 2 years after its removal.

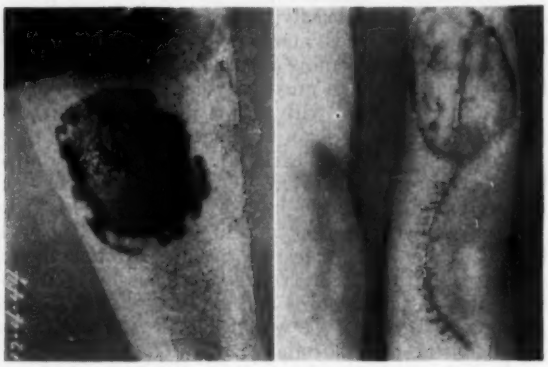


Fig. 3a Fig. 3b

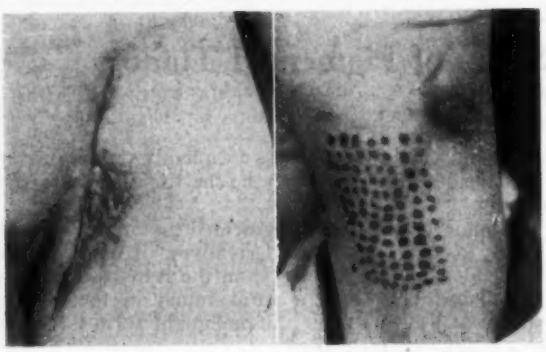


Fig. 3c Fig. 3d

Figs. 3a, 3b, 3c, and 3d.—(Table I, Case 10) (a) Original lesion, dorsal aspect of left leg; (b) site 5 months after excision; (c) groin dissection 2½ months after graft; (d) donor site for graft in groin dissection.

The melanoblast forms the pigment synthetically. It is removed from the lymph spaces and a colorless chromogen, in the presence of a specific intracellular ferment, oxydase, is formed in the protoplasm of the reacting cell, and this changes into a colored substance, melanin. This ferment has been called dopa-oxydase. This oxydase can be recognized as it oxidizes dihydroxyphenylalamin to a dark insoluble, partly diffuse and partly granular product in the cells. By the "dopa" reaction, the formation of pigment can be shown to be a specific function of the epidermis and its derivatives. Mesodermal derivatives react negatively.

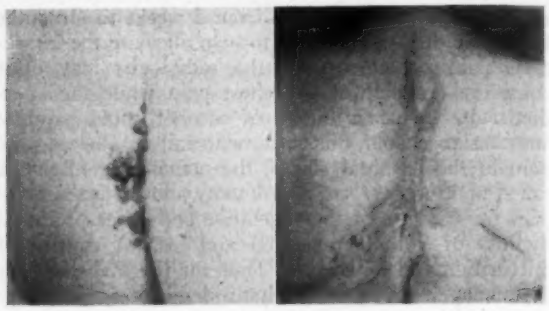


Fig. 4a Fig. 4b

Figs. 4a and 4b.—(Table II, Case 2) (a) Malignant melanoma of the skin of the back in a female 52 years of age. Lesion was present for 2 years before its removal; (b) area 6 months after excision. Patient died 1 month later.

The term "nevus" has been shown to include localized congenital disturbances of any of the structures of the epidermis. Nevi of different structural types frequently occur in the same individual. Nicholson[9] believes that 90 per cent of all humans have nevi of one type or another.

As to the etiology of pigmented tumors, we know very little of their origin. Ewing[10] believes that pigmented tumors have a distinct hereditary characteristic—the tumors are not hereditary, but the predisposition or susceptibility is. Most of the malignant melanomas develop from a pre-existing congenital mole, nevus, or pigmented wart.[11] Clinically, the dangerous mole is jet black, smooth and glistening. Trauma and irritation play important parts in the etiology of pigmented tumors of the skin. There have been numerous theories as to the causes of pigmented

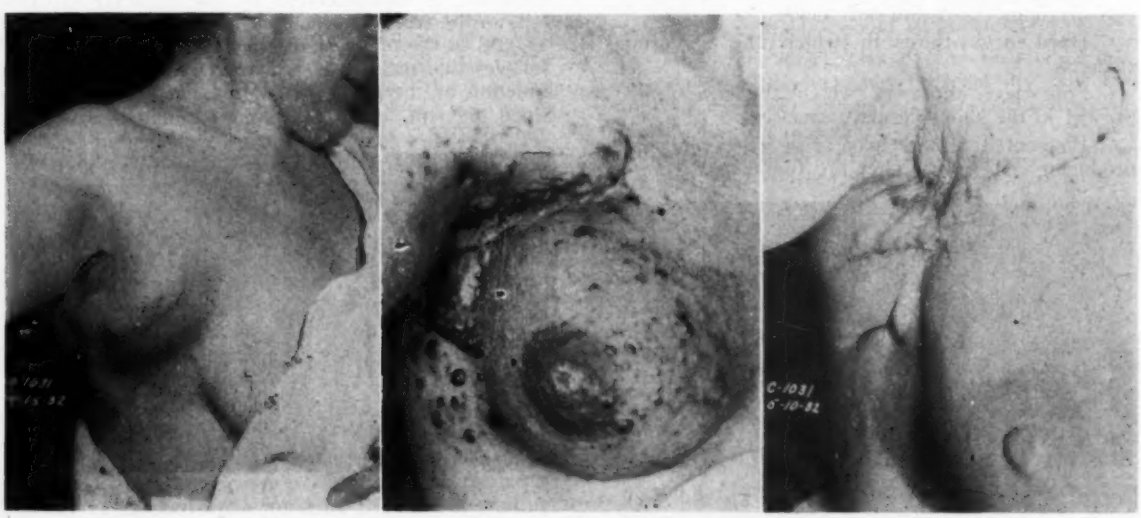


Fig. 5a Fig. 5b Fig. 5c

Figs. 5a, 5b, 5c—(Table II, Case 4) (a) Malignant melanoma of right axilla. The lesion measured 17 cm.; (b) area 1 month after excision: (c) area 3 months after excision.

Fig. 6a Fig. 6b

Figs. 6a and 6b.—(Table II, Case 10) Malignant melanoma of the forehead in a female 77 years of age. Lesion was present 1 year prior to observation at this hospital. Patient died 19 months after excision of the lesion.

tumors. Among these are the theories of Unna, Soldan, Masson, Von Recklinghausen, Ribbert, Halkin, Dawson, Krompecher, Laidlaw, Murray, and others.

Malignant melanomas are one of the most malignant types of tumors found in human beings.[12] There is invasion of the blood stream and metastases spread to every tissue of the body. Malignant melanomas are very radioresistant.[13] Metastatic melanomas usually run a fatal rapid course. Strangely enough this type of tumor is rare in the negro.[14] This type of tumor has also been found in white and gray horses.[15]

A great majority of malignant melanomas result from malignant transformations of benign nevi. In melanoma of the eye, there is always a lymphatic involvement.[5] All patients with melanomas of the eye die of general metastasis, especially of the liver. The metastases in these eye cases are usually late and it has been found that the prognosis is better in the eye cases than in those where the primary tumor is in the skin.

After malignant changes have occurred in the tumors, they infiltrate the surrounding tissues. The melanoma cells reach the regional lymph nodes through the skin lymphatics, causing their enlargement. It is rare to observe fungating lymph nodes because death occurs as a result of general metastasis before this may happen. The tumor gradually invades the capillaries of the nodes, ruptures blood vessels, and invades the blood stream with melanotic cells which results in a generalized metastasis. Invasion of the blood stream may also occur directly.[7]

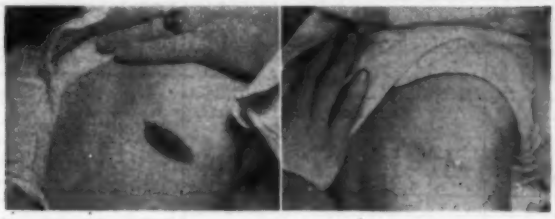


Fig. 7a Fig. 7b

Figs. 7a and 7b.—(a) Benign melanoma of the back in a child. Note the protruding hair. (b) Area after exsicion.

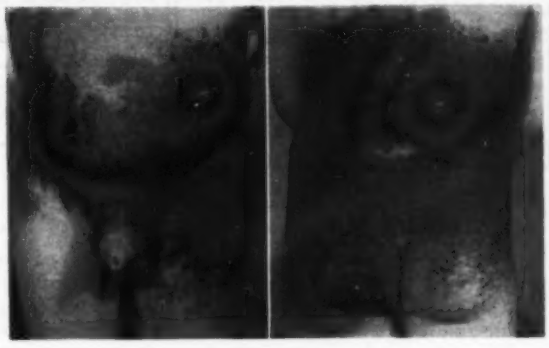


Fig. 8a Fig. 8b

Figs. 8a and 8b.—Extensive benign melanoma in a child 7 years of age.

The principal organs involved in metastasis are the regional lymph nodes and the skin. Metastasis usually appears in the regional lymph nodes of the drainage area. In generalized melanoma all the organs may be involved. The liver is frequently invaded. The lungs, brain, heart, intestine, and whole lymphatic system have been found to be involved. Mestastasis usually appears from 6 months to 2 years after the original tumor was noticed; however, metastasis may develop years later.

The symptoms of malignant melanomas vary. A symptomless tumor may become irritated, inflamed, may ooze, weep, increase in size and become more prominent. Changes are usually slow and become rapid if irritation or trauma is the exciting factor.[12]

The prognosis is invariably fatal, if not controlled by surgery, and the average duration of untreated cases is 1½ to 3 years.[16] Younger people die more

TABLE I

STATISTICAL ANALYSIS OF MALIGNANT MELANOMAS (MALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT	STATUS AFTER TREATMENT
1	79	2.00 CM.	RIGHT EYE	1.5 MO.	EXCISION & X-RAY	ALIVE 12 MO.
2	51	1.75 CM.	RIGHT LEG	6.0 MO.	EXCISION	ALIVE 19 MO.
3	61	1.20 CM.	RIGHT EYE	24.0 MO.	EXCISION & X-RAY	DIED 24 MO.
4	35	1.00 CM.	LT. SCROTUM	24.0 MO.	EXCISION & X-RAY	DIED 15 MO.
5	55	0.80 CM.	LEFT EYE	24.0 MO.	EXCISION & X-RAY	DIED 48 MO.
6	62	3.00 CM.	SKIN, BACK	18.0 MO.	EXCISION	ALIVE 7 MO.
7	46	0.60 CM.	LT. THIGH	12.0 MO.	EXCISION & X-RAY	DIED 6 MO.
8	56	2.50 CM.	LT. PAROTID	30.0 MO.	EXCISION, X-RAY & RAD. NECK DISSECT.	ALIVE 7 MO.
9	77	12.00 CM.	LT. FACE	72.0 MO.	EXCISION & X-RAY	DIED 17 MO.
10	58	3.70 CM.	DORSUM, LEFT LEG	2.0 MO.	EXCISION & GROIN DISSECTION	ALIVE 10 MO.
11	72	2.50 CM.	SOLE, RT. FOOT	24.0 MO.	EXCISION, X-RAY & AMPUTATION	DIED 5 MO.
12	62	3.50 CM.	SKIN, BACK	2.5 MO.	EXCISION	ALIVE 4 MO.
13	70	3.30 CM.	FACE	6.0 MO.	EXCISION, X-RAY & RADIUM	DIED 6 MO.
14	65	0.70 CM.	RT. FACE	7.0 MO.	EXCISION & RADIUM	DIED 36 MO.

TABLE II

STATISTICAL ANALYSIS OF MALIGNANT MELANOMAS (FEMALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT	STATUS AFTER TREATMENT
1	36	4.00 CM.	NECK	7.0 MO.	EXCISION	ALIVE 40 MO.
2	52	1.50 CM.	BACK	24.0 MO.	EXCISION & X-RAY	DIED 7 MO.
3	18	1.75 CM.	LT. FEMUR	6.0 MO.	EXCISION, X-RAY & GROIN DISSECTION	DIED 9 MO.
4	49	17.00 CM.	RT. AXILLA	12.0 MO.	EXCISION & RADIUM	DIED 6 MO.
5	61	7.00 CM.	RT. ANKLE	144.0 MO.	EXCISION	ALIVE 10 MO.
6	40	1.50 CM.	RT. NOSE	1.5 MO.	EXCISION & X-RAY	DIED 8 MO.
7	31	1.00 CM.	LT. EYE	7.0 MO.	EXCISION	ALIVE 36 MO.
8	65	3.50 CM.	LT. CHEEK	48.0 MO.	EXCISION	ALIVE 5 MO.
9	58	1.50 CM.	RT. FOOT	36.0 MO.	X-RAY & AMPUTATION	DIED 12 MO.
10	77	4.00 CM.	FOREHEAD	12.0 MO.	EXCISION	DIED 19 MO.
11	51	4.00 CM.	LT. HEEL	6.0 MO.	EXCISION & GROIN DISSECTION	ALIVE 12 MO.

TABLE XII

STATISTICAL ANALYSIS OF BENIGN MELANOMAS (MALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT
1	60	0.50 Cm.	LT. EAR	10 YRS	EXCISION
2	39	0.70 Cm.	FOREHEAD	SINCE BIRTH	EXCISION
3	68	1.00 Cm.	SCROTUM	SINCE BIRTH	EXCISION
4	36	0.30 Cm.	UPPER LIP	SINCE BIRTH	EXCISION
5	31	1.00 Cm.	RT. GROIN	10 YRS.	EXCISION
6	15	0.50 Cm.	RT. ELBOW	1 YR.	EXCISION
7	20	1.70 Cm.	LT. CHEST	SINCE BIRTH	EXCISION
8	2	7.00 Cm.	RT. THIGH	SINCE BIRTH	EXCISION
9	28	0.80 Cm. 0.35 Cm.	RT. FLANK LT. BUTTOCK	SINCE BIRTH " "	EXCISION "
10	73	0.75 Cm.	LOWER LYLLID	SINCE BIRTH	EXCISION
11	36	0.75 Cm.	LABIO-NASAL FOLD	5 YRS.	EXCISION
12	50	2.10 Cm. 1.50 Cm.	MID BACK RT. SCAPULA	SINCE BIRTH " "	EXCISION "
13	44	1.20 Cm.	PREAURICULAR	SINCE BIRTH	EXCISION
14	2	3.00 Cm.	BACK	SINCE BIRTH	EXCISION
15	33	2.50 Cm.	LT. BREAST	SINCE BIRTH	EXCISION
16	73	0.75 Cm.	LT. LYLLID	SINCE BIRTH	EXCISION
17	25	0.50 Cm.	TEMPLE	SINCE BIRTH	EXCISION
18	44	0.70 Cm.	NOSE	SINCE BIRTH	EXCISION
19	49	0.80 Cm.	PREAURICULAR	SINCE BIRTH	EXCISION
20	31	0.80 Cm.	HAND DORS.	SINCE BIRTH	EXCISION

TABLE XII (CONTINUED)

STATISTICAL ANALYSIS OF BENIGN MELANOMAS (MALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT
21	32	1.0 Cm. 0.5 Cm.	BACK ABDOMEN	SINCE BIRTH " "	EXCISION "
22	47	1.0 Cm.	FACE	SINCE BIRTH	EXCISION
23	47	8.0 Cm.	HAND	SINCE BIRTH	EXCISION
24	61	0.9 Cm.	BACK	SINCE BIRTH	EXCISION
25	19	0.8 Cm.	CHIN	SINCE BIRTH	EXCISION
26	53	0.7 Cm.	CHEEK	SINCE BIRTH	EXCISION
27	4	1.0 Cm.	FACE	SINCE BIRTH	EXCISION
28	54	1.5 Cm.	SHOULDER	SINCE BIRTH	EXCISION
29	74	1.0 Cm.	CHEST	SINCE BIRTH	EXCISION
30	63	2.5 Cm. 0.8 Cm. 1.2 Cm.	SCAPULA BACK FOREHEAD	SINCE BIRTH " " " "	EXCISION " "
31	49	1.0 Cm.	PENIS	SINCE BIRTH	EXCISION
32	1	0.3 Cm.	LT. TOE	SINCE BIRTH	EXCISION
33	29	0.6 Cm.	MASTOID	SINCE BIRTH	EXCISION
34	43	0.8 Cm.	SUP-ORBITAL	SINCE BIRTH	EXCISION
35	29	0.7 Cm.	FACE	SINCE BIRTH	EXCISION
36	41	1.2 Cm.	LEG	SINCE BIRTH	EXCISION
37	28	0.7 Cm.	LT. LACRI	SINCE BIRTH	EXCISION
38	28	1.5 Cm.	SCROTUM	SINCE BIRTH	EXCISION
39	16	2.5 Cm.	BACK	SINCE BIRTH	EXCISION

TABLE IV

STATISTICAL ANALYSIS OF BENIGN MELANOMAS (FEMALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT
1	13	1.00 Cm.	LT. FACE	SINCE BIRTH	EXCISION
2	63	3.50 Cm.	LT. CHEEK	SINCE BIRTH	EXCISION
3	46	2.50 Cm.	LUMBAR	SINCE BIRTH	EXCISION
4	57	0.80 Cm.	LT. NECK	SINCE BIRTH	EXCISION
5	60	1.00 Cm.	LT. TEMPLE	15 YRS.	EXCISION
6	30	0.40 Cm.	FOREHEAD	SINCE BIRTH	EXCISION
7	22	0.90 Cm. 2.00 Cm. 0.50 Cm.	RT. NECK LT. CHEST RT. SHOULDER	SINCE BIRTH " " " "	EXCISION " "
8	28	1.00 Cm.	BACK	25 YRS.	EXCISION
9	68	2.00 Cm.	ABDOMEN	15 YRS.	EXCISION
10	43	0.80 Cm.	ABDOMEN	20 YRS.	EXCISION
11	26	1.00 Cm.	ABDOMEN	SINCE BIRTH	EXCISION
12	32	0.40 Cm.	NOSE	SINCE BIRTH	EXCISION
13	65	2.00 Cm.	LT. SHOULDER	SINCE BIRTH	EXCISION
14	32	0.80 Cm. 0.80 Cm.	BACK RT. CHEEK	SINCE BIRTH " "	EXCISION "
15	1	5.00 Cm.	LT. WRIST	SINCE BIRTH	EXCISION
16	67	2.00 Cm.	RT. EAR	1 YR.	EXCISION
17	15	1.00 Cm. 0.20 Cm.	RT. ARM RT. NECK	SINCE BIRTH " "	EXCISION "
18	47	1.00 Cm. 0.80 Cm. 0.80 Cm.	BELOW EYE PREAURICULAR UPPER LIP	SINCE BIRTH " " " "	EXCISION " "

quickly than elderly people and there have been recurrences after 5 years' survival.[17]

The best treatment is wide radical excision of the primary lesion followed by regional lymph node dissection.[18,19,20] If a biopsy is taken, the electric loop technic followed by coagulation of the lesion, should be done to prevent dissemination. In melanomas of the extremities amputation and regional lymph node dissection are indicated.[20] X-ray and radium have been recommended by Darier, but, on the whole, irradiation is not recommended.[18]

Melanomas are to be distinguished from pigmented epithelial papillomata, pigmented basal cell tumors, and pigmented carcinoma in xeroderma pigmentosum.

All melanotic tumors observed at the American Oncologic Hospital were studied both clinically and pathologically. Careful histories were taken, all the patients were followed through, and careful observations were made from time to time. In the case of those patients who had not returned to the hospital, follow-up letters were written to the patients, relatives, or referring physicians, in order to obtain the necessary information. In this study, only those cases where the pathological and clinical findings corresponded are reported.

In summary, we note that melanomas are benign or malignant pigmented tumors of the skin and mucous membranes. They are believed to be of nervous origin. The malignant lesions may arise from pigmented moles and can be found at all ages in both sexes. Trauma and chronic irritation are important etiological factors. In most cases, patients apply too late for treatment. The best treatment is radical surgery followed by regional lymph node dissection. X-ray and radium therapy cures are rare. Modes of spread, metastasis, symptomatology, and prognosis are discussed.

A clinical and pathological study was made of 25 malignant melanoma cases and 111 benign melanoma cases.

After reviewing our assembled data, we have reached the following conclusions:

1. The malignant melanoma cases consisted of 14 males and 11 females. The average male age was 60.57 years; the average female age was 53.18. The youngest male was 35, while the oldest male was 78. The youngest female was 18, while the oldest female was 83.

2. The benign melanoma cases consisted of 39 males and 72 females. The average male age was 37.61 years; the average female age was 38.87 years. The youngest male was 1, while the oldest male was 74.

TABLE IV (CONTINUED)

STATISTICAL ANALYSIS OF BENIGN MELANOMAS (FEMALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT
19	20	0.75 Cm.	UPPER LIP	SINCE BIRTH	EXCISION
20	10	5.00 Cm.	RT. ARM	SINCE BIRTH	EXCISION
21	21	0.50 Cm.	LT. BREAST	SINCE BIRTH	EXCISION
22	7	0.25 Cm.	RT. CHIN	SINCE BIRTH	EXCISION
23	20	1.25 Cm.	FOREHEAD	SINCE BIRTH	EXCISION
24	38	2.00 Cm.	LT. CHEEK	SINCE BIRTH	EXCISION
25	34	0.25 Cm.	LT. BREAST	SINCE BIRTH	EXCISION
26	36	1.25 Cm.	LT. SHOULDER	SINCE BIRTH	EXCISION
27	65	0.50 Cm.	NOSE	SINCE BIRTH	EXCISION
28	30	1.00 Cm.	BACK	SINCE BIRTH	EXCISION
29	19	1.00 Cm.	HEAD	SINCE BIRTH	EXCISION
30	42	0.90 Cm.	RT. BREAST	SINCE BIRTH	EXCISION
31	29	0.50 Cm. 0.50 Cm.	ABDOMEN BACK	SINCE BIRTH " "	EXCISION "
32	42	2.00 Cm.	EXCURSION	SINCE BIRTH	EXCISION
33	41	0.30 Cm.	NECK	SINCE BIRTH	EXCISION
34	53	1.75 Cm.	NOSE	SINCE BIRTH	EXCISION
35	86	1.50 Cm.	LT. THIGH	SINCE BIRTH	EXCISION
36	31	1.75 Cm.	TEMPLE	40 YRS.	EXCISION
37	47	0.80 Cm.	NOSE	SINCE BIRTH	EXCISION
38	34	0.70 Cm.	LIP	SINCE BIRTH	EXCISION
39	84	0.60 Cm.	RT. EAR	SINCE BIRTH	EXCISION

TABLE IV (CONTINUED)

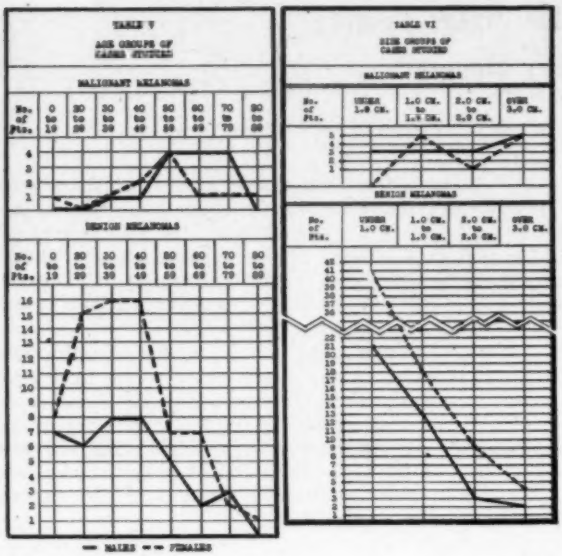
STATISTICAL ANALYSIS OF BENIGN MELANOMAS (FEMALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT
40	62	0.90 Cm.	NECK	SINCE BIRTH	EXCISION
41	68	2.00 Cm.	ABDOMEN	15 YRS.	EXCISION
42	34	0.80 Cm. 0.40 Cm. 1.00 Cm.	BACK BACK AXILLARY AREA	SINCE BIRTH " " " "	EXCISION " "
43	63	0.70 Cm. 0.40 Cm. 1.20 Cm.	NECK BREAST CHEST	SINCE BIRTH " " " "	EXCISION " "
44	54	0.20 Cm.	LT. FACE	SINCE BIRTH	EXCISION
45	36	0.20 Cm.	FOREHEAD	SINCE BIRTH	EXCISION
46	35	0.80 Cm.	RT. THIGH	SINCE BIRTH	EXCISION
47	39	0.90 Cm.	EYE	SINCE BIRTH	EXCISION
48	47	1.80 Cm.	HAND	SINCE BIRTH	EXCISION
49	36	2.00 Cm.	NOSE	SINCE BIRTH	EXCISION
50	70	1.40 Cm.	CHEST	SINCE BIRTH	EXCISION
51	36	0.80 Cm.	NOSE	8 MOS.	EXCISION
52	16	6.00 Cm.	SHOULDER	SINCE BIRTH	EXCISION
53	26	0.70 Cm.	CHIN	SINCE BIRTH	EXCISION
54	37	0.80 Cm.	BACK	SINCE BIRTH	EXCISION
55	70	0.30 Cm.	CHEST	SINCE BIRTH	EXCISION
56	29	0.70 Cm.	CHEST	SINCE BIRTH	EXCISION
57	33	0.60 Cm.	BACK	SINCE BIRTH	EXCISION
58	49	0.90 Cm.	AXILLA	SINCE BIRTH	EXCISION

TABLE IV (CONTINUED)

STATISTICAL ANALYSIS OF BENIGN MELANOMAS (FEMALE CASES)

CASE	AGE	SIZE	LOCATION	DURATION AT ENTRY	TREATMENT
59	24	0.30 Cm.	FOREHEAD	SINCE BIRTH	EXCISION
60	42	0.60 Cm.	NOSE	SINCE BIRTH	EXCISION
61	11	1.75 Cm.	NOSE	SINCE BIRTH	EXCISION
62	47	1.00 Cm.	EAR	SINCE BIRTH	EXCISION
63	47	1.20 Cm.	EAR	SINCE BIRTH	EXCISION
64	45	0.60 Cm.	LIP	SINCE BIRTH	EXCISION
65	50	0.30 Cm.	LIP	SINCE BIRTH	EXCISION
66	27	0.80 Cm. 1.00 Cm. 0.70 Cm.	TOE NECK CHEST	SINCE BIRTH " " " "	EXCISION " "
67	48	2.00 Cm.	FOREHEAD	SINCE BIRTH	EXCISION
68	29	0.90 Cm.	NECK	SINCE BIRTH	EXCISION
69	42	0.75 Cm.	RT. CHEEK	SINCE BIRTH	EXCISION
70	47	0.20 Cm.	BELOW LIP	SINCE BIRTH	EXCISION
71	28	1.50 Cm.	INGUINAL	SINCE BIRTH	EXCISION
72	23	0.80 Cm.	FOOT	SINCE BIRTH	EXCISION



The youngest female was also 1, while the oldest female was 83.

3. In the malignant melanoma studies, we find the average size in the male group was 3.11 cm., while in the female group it was 3.79 cm. In the benign melanoma studies, we find the average size in the male group was 1.20 cm., while in the female group it was 1.17 cm.

4. In the malignant melanoma cases, we find that the average duration at entry was 22.35 months in the male group, while it was 27.72 months in the female group. No averages of benign groups were calculated as most of these were found to be present since birth.

5. The majority of malignant melanoma cases in the male group were over 3 cm. in size, while in the female group the majority were equally divided in the 1 to 1.9 cm. and over 3 cm. groupings. It is interesting to note that none of the lesions in the female group was under 1 cm. in size.

6. The majority of benign melanoma cases in both male and female groups were found to be under 1 cm. in size.

7. The majority of malignant melanoma cases in the male group were found to be between 50 and 79 years of age, while in the female group the majority were between 50 and 59 years of age.

TABLE VII

A STUDY OF AVERAGES IN MALIGNANT AND BENIGN MELANOMA CASES

MALIGNANT MELANOMAS			BENIGN MELANOMAS		
AVERAGE AGE	MALE	FEMALE	AVERAGE AGE	MALE	FEMALE
57.32 YRS.	60.57 YRS.	55.16 YRS.	36.43 YRS.	37.61 YRS.	36.07 YRS.
AVERAGE SIZE			AVERAGE SIZE		
3.41 CM.	3.11 CM.	3.79 CM.	1.18 CM.	1.20 CM.	1.17 CM.
AVERAGE DURATION					
24.72 MO.	22.35 MO.	27.72 MO.			

8. The majority of benign melanoma cases in both the male and female groups were found to be between 30 and 49 years of age.

Box 6388

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VERTEBRAL BODY TREPHINE (A PRELIMINARY REPORT)

In the absence of a definite diagnosis, treatment of vertebral body lesions by antibiotics, x-ray, or spinal fusion has been empirical. With a simple adequate biopsy of the vertebral body, a true scientific approach is found. The medicolegal aspect is of immeasurable value.

A preliminary report of the method used to pass a special trephine successfully into the vertebral body is presented here. The patient is placed in a prone position. A paravertebral incision is made directly over the articular facet of the vertebral body under diagnosis. The articular facet is located and the intra-articular space is gouged at a right angle, with the trephine entering into the medullary space of the pedicle. With slight pressure the trephine is guided by its own weight into the body of the vertebra. When the spine is in a neutral attitude, the trephine will enter the vertebral body at its midportion. If the spine is hyperflexed, the trephine will enter the superior anterior margin of the body. The dense cortical rim of the vertebral body and of the pedicle will prevent the trephine from penetrating outside its margin. The diameter of the trephine used is dependent upon the vertebra to be biopsied. A small ⅛-inch trephine is used for the cervical region, and one about ¼-inch for the lumbar area.

Aside from removal of the pathological tissue through the area of trephining, it is noted that a complete excochleation of the cancellous vertebral body can be performed with replacement by iliac graft. The area of penetration through the articular facets is replaced by iliac graft in order to effect a fusion of the articulation.

The question of conservative or operative treatment for spinal tuberculosis with a beginning collapse, has thus been decided. Spinal fusion is modified by replacing pathological tissue with osteogenetic graft. In cases of hematomyelia involving the vertebral body where there has been no response to x-ray therapy, the vertebra can be excochleated and replaced with bone graft. In cases of vertebral body tuberculosis with abscess formation, suction of pus can be carried out through the area of biopsy without difficulty prior to the fusion.—A. A. Michele and F. J. Krueger, *Public Health Reports*, August 8, 1947.

The Effects of the Atlas Lesion

A Preliminary Report

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INTRODUCTION

The effects of the atlas vertebral lesion have been investigated by Burns[1] and others and the results of these investigations have been published in THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION and Bulletins of the A. T. Still Research Institute.

In these studies the tissue preparations were stained by routine staining methods, e.g., hematoxylin and eosin. It was found that there were histopathological variations between the tissues of the control and those of the lesioned animals. It would seem advisable to continue those preliminary investigations by preparing histological preparations using various staining technics, which demonstrate different microscopic characteristics.

The number of animals used in this experiment was not sufficient to warrant final conclusions; however, the results indicate that continued work in this field should be productive.

MATERIALS AND METHODS

The frozen method of sectioning was used in all instances and the sections were cut at 10 micra. Two staining methods were used: The first was gallocyanin,[2] and the second a modification of the Bielschowsky reticular stain.[3]

The laboratory rat (Mus norvegicus) was the experimental animal used. Lesioning of the animals was accomplished by Dr. Louisa Burns. The method consisted of a slow steady pressure on the transverse process of the atlas. This procedure was carried out daily for the first 14 days, and then twice weekly until the animals were killed. The animals were checked frequently to determine if the lesion was present. Care was taken to avoid traumatizing the tissues.

After 4 months the animals were killed by an overdose of ether. The tissues were removed before the animal died and fixed in 70 per cent methyl alcohol for 6 hours and then transferred to 10 per cent neutral formalin (alkalinized by an excess of sodium carbonate) for several weeks.

RESULTS

A. Physical Examination.—There was no variation of the experimental animals from the control animals in physical appearance. The experimental animals seemed more nervous and apprehensive than the controls and were not as easy to handle when checking for the presence of the lesion.

In the experimental animal the cervical muscles were ropy and boggy when palpated, characteristics that were not present in the control animals.

There were no other objective differences between the control and the experimental animals.

B. Microscopic Examination.—The tissues removed and examined microscopically were the brain, heart, liver, and the cervical muscle mass. These tissues will be described separately.

1. Liver: The sections of liver from the *control* animals did not show any change from the normal histological picture. The central vein was clearly demarcated and the liver cord cells were clearly defined. Fine connective tissue elements were noted between the liver cord cells in the silver stained preparations. The bile canaliculi were normal size.

In the sections from the *lesioned* animals there was an increase in the space between the liver cord cells. The granules of these cells showed an increased staining capacity, resulting in a pseudo-overstained appearance of the tissues. The experimental tissues were stained the same length of time as the controls. This would indicate an acid reaction of the experimental tissues.

In the sections stained by the modified Bielschowsky stain no increase in the reticular fibers was noted except around the central vein.

These sections exhibited a histopathological picture similar to an albuminous degeneration; however, there was no indication of fatty degeneration.

For comparison of the experimental and control sections of the liver see Figures 1 and 2.

2. Brain: There was no difference noted between the controls and the experimental animals on microscopic examination. The brain stem, basal ganglia, and low segments of the medulla were examined. The spinal cord and cortex of the cerebrum were not examined in this experiment.

3. Cervical Muscle Mass: The cervical muscle mass between the occiput and the fourth cervical vertebra was the only spinal muscle examined.

The control sections and the experimental sections stained with gallocyanin did not show any histological differences. These sections demonstrated the nuclei of the muscle fiber and the cross striations better than the silver stained preparations. (See Figure 3.)

The sections of the *control* animals stained with the modified Bielschowsky stain indicated that there were some muscle fibers in a partial state of contraction. The nuclei of the connective tissue elements showed clearly and in some instances the nucleus of the sarcomere could be distinguished. There was little collagenous material between the muscle fibers.

The sections from the *lesioned* animals demonstrated that there was a predominance of spastic fibers and only a few fibers in the relaxed state. A pseudo-overstrained appearance was noted, similar to that seen in the liver. There was an increase in the collagenous or reticular fibers located between the muscle fibers. The media of the blood vessels in these muscle fibers was slightly increased in thickness when contrasted to those of the control animals. (See Figure 4.)

4. Cardiac Muscles: The entire heart was not examined; in this study only the lower portion of the interventricular septum and the ventricles were sectioned. The sections taken from the *control* animals presented a normal histological picture. There was no indication of excess collagenous tissue or hemorrhage in these tissues.

Note: The tissues described in this paper were from animals which were under experimental study in the Research Laboratory, Los Angeles, by Dr. Louisa Burns. This study was made possible by a grant from the Committee on Research of the American Osteopathic Association.

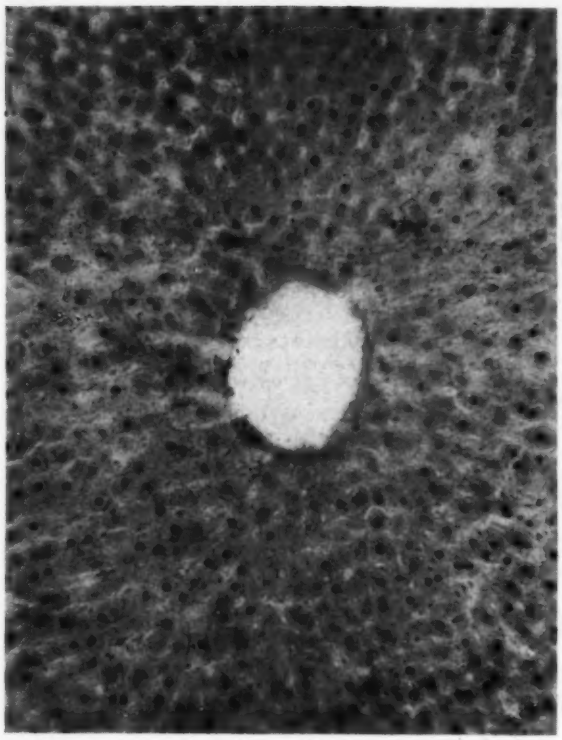

Fig. 1—Liver tissue of a control rat (×160, enlarged ×4). Modified Bielschowsky stain.

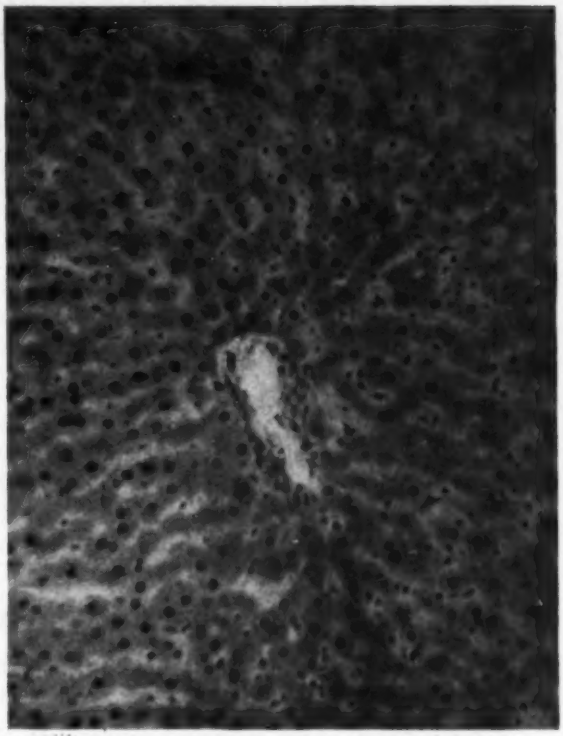

Fig. 2.—Liver tissue of a lesioned rat (×160, enlarged ×4). Modified Bielschowsky stain. Space between liver cord cells enlarged. Intensified staining reaction of the argentaffin granules of the liver cells. Increase in the connective tissue cells of the central vein.

Fig. 3.—Cervical muscle (×160, enlarged ×8). Modified Bielschowsky stain. Nuclei and collagen fibers are demonstrated. Few muscle fibers in state of contraction.

Fig. 4.—Cervical muscle mass (×160, enlarged ×8). Modified Bielschowsky stain. Increased staining reaction and increase in number of contracted fibers.

The sections from the *lesioned* animals contained hemorrhages similar to those previously described by Burns.[4] These hemorrhages were sinuses filled with erythrocytes and were located between the cardiac muscle fibers. As there was no endothelial lining to these sinuses, they were considered abnormal. (It was necessary to overstain the sections with a counterstain, in this case phyloxin, in order to demonstrate these hemorrhages.) The sinuses were not numerous but large enough to be considered hemorrhage by diapedesis.

The sections stained with the modified Bielschowsky stain indicated that there was a slight increase in the reticular fibers. This was not as evident as in the cervical muscles. The increased staining reaction was also noted in these tissues.

CONCLUSIONS

It has been stated[5] that the effects of the osteopathic joint lesion are mediated through the central and the autonomic nervous systems, and the results of this preliminary survey would seem to substantiate this statement.

The results of this experiment indicate that localized alteration in a single vertebral segment has effects that are noted in certain organs and tissues that are innervated by a nerve supply originating in that vertebral segment.

Further investigation should be made to ascertain whether the effects noted in this experiment are due to direct nerve irritation, whether the irritation produced by the alteration of the vertebral joint is reflexly transmitted through the spinal cord, through the higher centers, and then to the viscera, or by some other mechanism.

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The Physiological System of the Connective Tissue*

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A quick review of the embryonic development of body structures is a useful prelude to the consideration of the physiological system of the connective tissue.

The fertilized ovum subdivides into numerous cells which, in turn, differentiate into the three primary germ layers: ectoderm, mesoderm, and entoderm. Ectoderm and entoderm take form as regularly arranged sheets of cells, closely bound together into an epithelium, with little or no intercellular substance. Between them the mesodermal epithelial cells assume a loose, irregular arrangement, secreting about themselves an abundant intercellular substance.

As the embryo develops, a part of the ectodermal layer of cells folds within its structure to give rise to the nervous system, while the remainder becomes the epidermis, or outer layer of the skin, and the linings of the mouth and anus. The entodermal layer folds inward to become the lining of the gastrointestinal tract, with its derivative glands, and of the respiratory system. The epithelial cells of the mesoderm, having served to secrete the mesodermal matrix, now take their places as lining cells of the genitourinary tract or, slightly modified, become the linings of the dural and subdural cavities and the coverings of the serous membranes, peritoneum, pleura and pericardium.

There now develops in the mesodermal area a mass of irregular fusiform or stellate cells, connected with each other by their processes and surrounded by a liquid, semi-liquid or jelly-like substance, which they themselves secrete. This is the mesenchyme, the middle tissue, the common connective tissue from which all body systems except the nervous system arise.

Some of the fusiform and stellate cells of the mesenchyme are believed to retain their primitive character throughout life. Others are modified to form cells variously called fibroblasts, histioblasts or reticuloendothelial cells. They are the stem cells, the universal anlage, of the mesenchyme. Dividing rapidly by mitosis, they differentiate into chondroblasts for the formation of cartilage; osteoblasts for the formation of bone; myoblasts for the formation of muscle tissue, smooth, striated and cardiac; and hemohistioblasts for the formation of blood vessels and the red and white blood corpuscles. Cartilage, bone, muscles, blood, lymph and the blood-forming and blood-destroying organs are known as the formed connective tissues.

Surrounding the formed connective tissue elements, the stem cells develop a soft, whitish, sticky mass, the unformed connective tissue, or connective tissue proper, with which this discussion is concerned. The connective tissue proper is composed of a network of many white collagenous and a lesser number of yellow elastic fibers, with innumerable microscopic cavities between. These cavities are filled with fluid containing various types of free cells, large in size as compared with the blood cells, having spongy nuclei and abundant cytoplasm.

Fibers of the connective tissue proper are attached to and penetrate all the bony prominences. They form the cutis vera, or true skin, the greater part of ligaments, tendons, periosteum, fascia, and the sheaths of muscles, blood vessels, and nerves. Enveloping nerves and blood vessels, they enter every gland and organ of the body even to the inner coats of the tiniest vessels. The sensory nerve endings, excepting only those of the pain fibers, are enclosed in connective tissue capsules.

For centuries anatomists looked upon the function of the connective tissue proper as solely that of a kind of flexible skeleton, or stroma, for the support and protection of the body. Histological research in the past 5 or 6 decades, however, has demonstrated

*Read at the annual session of the Academy of Applied Osteopathy, Chicago, July 18, 1947.

that in addition there exists an important physiological system in the activities of the free cells, a system interacting with all the other body systems and exerting a commanding influence upon them.

Andrew Taylor Still[1] anticipated the discovery of this physiological system when he wrote of what he called "the superficial, deep and universal fascia," defining it as "that principle that sheathes, permeates, divides and subdivides every portion of all animal bodies." Still wrote, "I believe that more rich golden thought will appear to the mind's eye as the study of the fascia is pursued than any division of the body . . . knowledge of the universal extent of the fascia is almost imperative, and is one of the greatest aids to the person who seeks the cause of disease. . . . The fascia is the place to look for the cause of disease and begin the action of remedies in all diseases. . . . All excrescences and abnormal growths, diseases and conditions must have the friendly assistance of the fascia before they can develop. . . . There we find a place for the white corpuscles building anew and giving us strength to throw impurities from the body. . . . By its action we live, and by its failure we shrink, or swell, and die. . . . The fascia proves itself to be the probable matrix of life and death." Thus said Still 50 years ago!

Credit must be given to a series of medical researchers for our present knowledge of the activities of the connective tissue cells. Ranvier, late in the nineteenth century, was perhaps the first to observe among the fibroblasts peculiar budding processes which he called clasmatocytes. Metchnikoff, soon after, described cells in the connective tissue spaces which he named macrophages, to distinguish them from the microphages, or white cells of the blood. Metchnikoff advanced the theory of the amebic and phagocytic character of the macrophages and described their function as that of sanitation and cleansing, the absorption of invading bacteria, and the resorption of dying cellular elements.

Aschoff, later, attributed to the macrophages the additional functions of transportation of protein and lipoid substances, metabolism of iron, and elaboration of bile. Aschoff's contemporary, Schade, drew attention to the action of substances between the cells as a semipermeable membrane through which metabolism takes place. The method of this early research was that of injecting dyes into the blood stream or peritoneal cavity of the organism under observation and noting the reaction of the cells in the ingestion of these substances.

In 1911, Aschoff gave the name reticuloendothelial system to the aggregation of cells that had been found to manifest a common behavior towards injected dyestuffs. The term was generally accepted, but proved to be confusing and indefinite in meaning. Two concepts arose: First, that of the reticuloendothelial system in a narrow sense, including only the phagocytic cells of the sinuses of the spleen and lymph nodes, the bone marrow, and the liver sinusoids; second, that of the reticuloendothelial system in a broader sense, including also cells of the pancreas, testes, hypophysis, thymus, and adrenal cortex, indeed all free cells, wherever found, that ingested stains or colloidal solutions of metals. Various researchers described multiple forms of connective tissue cells, designating them by such names as polyblasts, histiocytes, adventitial cells, active wandering cells, resting wandering cells and others, thus adding to the confusion.

A note of clarity is sounded by Burns[2] when she states that there is every reason to believe that the various terms employed are really different names for the same cell, which presents different appearances under different circumstances and is capable of developing from one form into certain others according to the needs of the body at any given time. Maximow and Bloom[3] observe that marked variations are found in the ameboid cells of the connective tissue, the largest having the structural characteristics of the monocytes of the blood, others being identical with the large lymphocytes, and all types displaying a continuous series of gradual transitions. Also, they observe that they have the ability to return, when not needed, to their original state as fibroblasts, standing by, as it were, until again called upon for duty. Fat cells are an example of this. When fat is stored, fibroblasts discard their nuclei and become mere sacs. When the fat is needed, the cells empty themselves of it and again become nucleated fibroblasts.

Observation of cells artificially incited to activity by means of injected dyes had a definite value in establishing the genesis of phagocytic cells from the stem cells and in leading to certain experiments as to their function. As to further results, the method proved limited and at times inaccurate. In 1924 Bogomolets called attention to the unreliability of morphological studies by means of stains and colloidal solutions alone in seeking to extend the knowledge of the reticuloendothelial system. He advocated a shift of emphasis to the observation of normal function and proposed the replacement of the term reticuloendothelial system with that of the physiological system of the connective tissue.

We are indebted to Bogomolets and his associates for many subsequent valuable findings. In an article translated from the Russian and published in this country in 1943, Bogomolets[4] describes the physiological system of the connective tissue as possessing complex functional manifestations and being composed of varied histological elements including: "clasmatocytes, with their active phase of polyblasts, reticular cells, fibroblasts, adventitial cells, basophilic cells, oxyphilous plasma cells, fatty cells rich in lipase, besides chromatophores, the stellate cells of the liver, epithelioid and granulomatous giant cells, perivascular cells of various organs and reticuloendothelial elements of the spleen and thymus, monocytes, lymphocytes, fibroblasts and osteoblasts." He calls attention to the capacity of these cellular elements to respond to specific irritants with characteristic histological reactions, for example, to the tubercle bacillus and Spirochaeta pallida. He speaks of the influence of the nervous system, particularly the autonomic nervous system, on the activity of the connective tissue elements, exerted, he believes, by means of humoral factors secreted by the nerves, probably in the spleen and lymph nodes.

Bogomolets lists the functions of the connective tissue system as follows: (1) Trophic function, disorders of which result in pathological conditions and contribute to premature aging; (2) plastic function, or the active participation in the healing of wounds and ulcers and the regeneration of tissues; (3) protective functions, including (a) phagocytic reaction to infections, most of which proceed in the connective

tissue, and (b) reaction to the development of new growths; (4) autoregulative function through internal secretion of stimulating substances, especially in the spleen, and (5) mechanical function in the formation and maintenance of the osseous and elastic skeleton of the body.

Elaborating on the trophic function of the connective tissue, Bogomolets describes the nutritive activities of the cells as those of transporting food substances, carrying on oxidative processes, and continually secreting fibrils in the spaces between the capillary walls and the parenchymal cells, which serve not only as a semipermeable membrane for purposes of metabolism, but also as a depot for the storage of nutritional supplies. For instance, the cells of the connective tissue of the nervous system, the neuroglia, carrying nutriment to the nerve cells, produce fibrils and deposit in them substances on which the nerve cells can draw for energy and repair. This the connective tissue cells accomplish for all the parenchymal cells, so that the nutrition and well-being of the entire body is largely dependent on their condition and activity.

The constant formation and renewal of the filtering membrane, which Bogomolets calls the hematoparenchymal barrier, involves complicated biophysical and biochemical processes, any disorder of which reacts on the local and general resistance of the body. Immunity to infection, Bogomolets states, is assured by the unimpaired condition of the connective tissue. New growths cannot develop in organisms that retain normal resistance; it is only an impaired connective tissue that predisposes to cancer. Hypertension may often be regarded as due to a lessening of the permeability of the hematoparenchymal barrier, a condition that precedes sclerotic changes in the blood vessels. The process of aging consists largely in a weakening of the cellular elements, with gradual loss of ability to renew themselves. One can and must struggle against old age, Bogomolets concludes. It is an ailment and can be treated as such, because what we are accustomed to regard as normal old age is really due to an abnormal premature impairment of the connective tissue. Adverse social conditions involving cold, hunger, anxiety and overwork contribute largely to connective tissue impairment; therefore a favorable environment, proper nutrition, and wisely regulated activity and rest are indispensable factors in the maintenance of health and the prolongation of life.

Supplementing the foregoing health measures, in diseased or senile conditions, Bogomolets prescribes a serum made from spleen and bone marrow substances known as antireticular cytotoxic serum, or, abbreviated, ACS. Originally developed as an antidote for aging, this serum was found to be effective during the war in traumatic and inflammatory conditions. Indications for its use are not determined by the etiology of the disease, but by the condition of the connective tissue and treatment is directed to the stimulation of trophic, protective, and plastic connective tissue function. Extremely small amounts of the serum are injected, subcutaneously or intravenously, measured in hundredths of a centimeter, larger doses having been found to block the physiological processes of the connective tissue. The chief caution in its use is against overdosage. It is claimed to be contraindicated only in rheumatic conditions and in myocarditis and endocarditis.

ACS is not a cure of itself, Bogomolets states, but an aid to the body in effecting its own cure. He does not claim for it specificity, but that it is beneficial in a variety of cases, a therapy directed toward supporting and strengthening the natural healing power of the body, which he states is the best ally both patient and doctor have in their fight against disease.

In the United States, a few medical groups are experimenting with ACS, renaming it however, REIS, or reticuloendothelial immune serum, a terminology giving emphasis to the immune phenomena involved, without attaching undue importance to cytotoxic effects. Strauss on the West Coast has demonstrated that there is an improvement in the healing of experimental fractures in the presence of very small doses of the serum and studies are being made as to its possible value in the prevention and treatment of malignancy.[5]

Having reviewed the microscopic anatomy of the connective tissue system and considered the conclusions of the researchers as to its physiology, we may now turn to the application of the osteopathic concept to these discoveries. In the amazingly versatile activity of the connective tissue system as it maintains and renews the living processes, engulfs invading organisms and toxic substances, repairs injuries and continually produces the multiple types of cells necessary to meet changing body needs, we can scarcely fail to find new confirmation of the osteopathic principle that the normal body is able to care for its own needs and that in abnormal conditions the wisdom of the physician is best displayed, not by using methods aimed to stimulate to greater activity cells already overworked, but by taking measures to remove the obstacles to their function. With Bogomolets' objective of helping to support and strengthen the natural immunity and healing power of the body, we can enthusiastically agree and recognize in his serum therapy the best treatment for connective tissue impairment that the older school of medicine has so far developed. Yet we believe it to be less effective than osteopathic manipulative therapy skillfully and intelligently applied.

Considering what to do osteopathically in the presence of impaired connective tissue function, we may first examine the movement of fluids in relation to the connective tissue. Normally, through the arterial ends of the blood capillaries, a modified blood serum passes into the tissue spaces, carrying nutritive substances and oxygen. From this fluid, the connective tissue cells supply the metabolic needs not only of themselves but of the parenchymal cells as well. Into it the cells discharge carbonic acid and other waste materials. Also the cerebrospinal fluid, which surrounds the nervous system in its entirety, providing its cells with nutriment and carrying away their waste, is now known to discharge in part into the tissue spaces, through the nerve sheaths.

This accumulation of tissue fluids re-enters the blood stream through the walls of the venous ends of the capillaries, carrying away the waste. In areas of the body where there is muscular activity, and greater amounts of nutritive fluids are delivered by the blood, excess fluid escapes from the tissue spaces through the dead ends of the lymph capillaries and reaches the venous system by way of the lymph vessels. Whatever obstructs the free flow of blood, cerebrospinal fluid, tissue fluids, and lymph obviously impairs con-

nective tissue function and needs to be removed by the physician's manipulative skill.

Second, we are concerned with the nerves that control the connective tissue processes. Lying in the connective tissue is a dense network of nerve endings, among them those of the sympathetic and parasympathetic fibers that regulate the constriction and dilatation of the vessels and by their secretions activate the free connective tissue cells. Whatever interferes with the free impulses of these nerves must be removed if connective tissue function is to be returned to normal.

Third, the relation of gross structural lesions to connective tissue function must be examined. Kauffman[6] has emphasized the importance of the microscopic lesion in the connective tissue that accompanies the gross osteopathic lesion. Capillary walls become more permeable; more fluid is discharged into tissues than veins and lymphatics can carry away; edema results, with pressure and finally fibrosis. It is impossible for connective tissues in relation to the gross osteopathic lesion to function normally till correction of the osteopathic lesion is accomplished. Conversely, the ends of the proprioceptive nerve fibers lying in the connective tissue, sensory components of the reflex arcs concerned with coordinated movements and posture, are highly sensitive to, and their impulses easily blocked by, the pressure of fluids, so that posture is difficult to maintain as long as the microscopic lesion exists. Kauffman advises that all corrective technics be administered with both gross and microscopic lesions in mind.

In our concern for the preservation and restoration of connective tissue function, there are also procedures that osteopathically we should avoid. One of these is unspecific manipulation of soft tissues that results in damaging capillary walls, causing edema and subsequent fibrosis. Fryette[7] uses a quick, specific spinal technic that disturbs soft tissues as little as possible, except where already existing fibrosis hinders correction, in which case he advises stretching the contracted fibers to the point of fracture and then allowing time for the macrophages to carry away the debris before bony correction is attempted.

Also to be avoided is the use of heat and the various procedures of physiotherapy in a manner to bring fluid to the tissue spaces by way of the arterial capillaries faster than venous and lymphatic capillaries can carry it away. This produces stasis, pressure and consequent pathology.

The introduction of substances into the body, with which it is difficult or impossible for the macrophages to cope, obviously should be avoided. Of the 94 known chemical elements, only 15 or 16 enter into the composition of the human body. These are elements light in weight, electrically balanced, stable, safest for the development and nurturing of life. Most abundant are hydrogen, lightest of the elements, whose atomic weight is 1, carbon with atomic weight of 12 and oxygen with atomic weight of 16. These three constitute 93 per cent of the body weight. Nitrogen, with a weight of 14, calcium with a weight of 40 and phosphorus with a weight of 31, make up an additional 6 per cent, while minute amounts of sulfur, sodium, chlorine, magnesium and iron with traces of iodine, fluorine and silicon make up the remaining 1 per cent. Chemically, it would appear that substances introduced into the body should consist of the same light-weight, stable elements of which the body is composed, as nearly as possible in the same proportion. Alien elements act as foreign bodies and make unphysiological demands upon the macrophages. While some may be ingested and disposed of without permanent harm, others must be held for protracted periods by the macrophages and discharged little by little as the body is able to bear away their poisonous content. Still others combine chemically with the cells, permanently perverting their function. Some, for instance drugs containing arsenic, an element with a complex, unstable nucleus and an atomic weight of 75, overwhelm and destroy the macrophages. Morhardt[8] cites major arsenical dermatitis as a real threat to life and postarsphenamine hepatitis as a not infrequent cause of "liver death." Bromine has a complex nucleus and an atomic weight of 80. Given to produce sleep the bromides have an inevitable deleterious effect on skin and kidneys. Sulfa drugs, compounded of aniline, a coal tar product, and sulfuric acid are harmful in effect. The body, whose relative amount of sulfur is normally as one atom to a large molecule of thiamine hydrochloride or cystine, finds it difficult to combat the comparatively large amounts of sulfa products poured into it. The drugs named are only a few of those in common use that devastate the connective tissue system. Careful study of their effects is imperative and their use, if at all, should be with knowledge and caution and with later consideration of the damage they may have caused.

SUMMARY

1. The physiological system of the connective tissue embraces the activities of free cells originating in the primitive fibroblasts, or stem cells, of the mesenchyme. These cells assume various forms and carry on multiple functions of nutrition, protection, and repair. They adapt and multiply themselves according to body needs.

2. In evaluating the results of connective tissue research, osteopathic physicians find confirmation of the principle that within the body there is provision for its own maintenance and that in impaired conditions the body is able to restore itself, if obstacles to normal function be removed.

3. Suitable manipulation, directed to the restoration of free movement of body fluids, unimpeded nerve impulses, and structural integrity, gross and microscopic, allows the connective tissue cells to normalize both their own activities and those of the parenchymal cells.

4. The use of manipulative and other measures damaging to microscopic structures should be avoided in treatment, as should also the administration of substances alien to normal body chemistry.

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Blood Cultures in the Diagnosis of Brucellosis

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Physicians doing general practice should be aware of the problem presented by brucellosis and should be prepared to make an accurate diagnosis when confronted with the disease. This applies not only to the physicians practicing in endemic areas, but also to physicians everywhere. The locality in which I practice is a modern suburb of New York City and its health facilities are of the best, yet I am treating at the time this is being written (June, 1947) nineteen proved cases of undulant fever.

The lack of awareness that undulant fever may be found in a cosmopolitan area is well illustrated by the fact that my druggist, who supplies me with brucella vaccine, for the testing and treatment of undulant fever, said to me the other night, "Doctor, what do you do with all this stuff? There's no undulant fever in Connecticut!"

The purpose of this paper is not to reiterate all that has been so well written on the diagnosis and treatment of undulant fever. For such material every practicing physician should read the classic articles by Evans[1] and Harris.[2] Huddleson's book, "Brucellosis in Man and Animals,"[3] is also an excellent treatise upon the subject.

We present three cases in which a diagnosis of undulant fever was made without positive agglutination tests and without positive culture. Cultures taken at a later date proved positive for brucellosis. If a diagnosis of brucellosis had been withheld in these three cases because of a lack of a positive agglutination test or blood culture, loss of valuable time and perhaps damage to the patient's economy might have resulted.

It is my feeling that a persistent effort should be made to obtain a positive agglutination test and culture in every suspected case, but a positive agglutination test or culture should not be used as the sole criterion, nor treatment be delayed until they can be obtained.

The following three summarized case histories illustrate that a correct diagnosis of brucellosis can be made without a positive blood culture or a positive agglutination test or both. In these cases the diagnosis was made and the treatment was started, then, after a period of time had elapsed, cultures were found positive, proving the diagnosis. Agglutination tests became positive after treatment began, but this change has no diagnostic significance. It was due to the production of antibodies in response to the vaccine.

Case No. 1.—Woman, aged 22 years, height 5 feet 2 inches, weight 92 lbs., complained of fatigue and lack of energy, indigestion and nervousness. On examination her blood pressure was 130 systolic, 65 diastolic, pulse 80. Her tonsils showed infection. The blood count was normal and the Wassermann reaction negative. A urine specimen was normal. Agglutination tests for typhoid, paratyphoid and undulant fever were negative.

Opsonocytophagic index revealed: No phagocytosis 16 per cent, slight phagocytosis 84 per cent, moderate phagocytosis 0 per cent, marked phagocytosis 0 per cent. A skin test for brucellosis, using brucellergin, was positive. A diagnosis of undulant fever was made despite negative agglutination tests and negative blood culture.

Patient was treated with nonspecific protein therapy and supportive measures for 3 months with moderate improvement in her symptoms. Tonsils were removed. On October 15, 1945, agglutination tests were still negative. Opsonocytophagic index revealed: No phagocytosis 8 per cent, slight phagocytosis 28 per cent, moderate phagocytosis 60 per cent and marked phagocytosis 4 per cent. The patient was treated again for a period of several months with nonspecific protein therapy with moderate further improvement in her symptoms. In July, 1946, another opsonocytophagic test was performed, which revealed: No phagocytosis 12 per cent, slight phagocytosis 60 per cent, moderate phagocytosis 28 per cent, marked phagocytosis 0 per cent. Because of this reduction in antibody response, the patient was started on treatment with brucellin, a specific brucellosis vaccine extract. The Connecticut State Department of Health makes a practice of culturing all specimens of blood sent to them for the opsonocytophagic index, and on July 25, 1946, notice was received that the last specimen submitted for opsonocytophagic index on July 3, 1946, showed a positive culture for *Brucella abortus*. The patient was continued on treatment with brucellin and has continued to improve.

In this case the patient had been under treatment for 1 year and 2 months before a positive blood culture was finally obtained. Her agglutination tests and culture were both negative when the original diagnosis was made. Brucellosis was later proved by blood culture.

Case No. 2.—Man, age 47, weight 182 lbs., height 5 feet, 8 inches, complained of a burning feeling in the limbs, nervousness, extreme fatigue, backache, indigestion, continuous eructation of gas and a phobia that he might have carcinoma or brain tumor. He was in the poultry business. He raises, dresses, and sells turkeys and chickens.

His youth was spent on a farm and he drank raw cow's and goat's milk. His past history included frequent colds and frequent sweats. On examination his blood pressure was 120 systolic, 70 diastolic, pulse 80. Heart, lungs, and abdomen were normal. The only positive physical finding was a dermographia. The Wassermann test was negative. Agglutination tests were negative for brucellosis and paratyphoid, but slightly positive for typhoid 0 in a 1 to 40 dilution.

Opsonocytophagic index revealed: No phagocytosis 40 per cent, slight phagocytosis 60 per cent, moderate phagocytosis 0 per cent, marked phagocytosis 0 per cent. Brucellosis skin test was positive. Urine sample was normal. Because of the patient's aggravated nervous system symptoms, I did a Minnesota Multiphasic Personality Inventory test, and found normal scores for both the neuroses and psychoses. A diagnosis of brucellosis was made despite the negative agglutination test and culture.

On November 12, 1946, the patient was started on brucellin alternated with brucella vaccine. Treatment was continued until March 10, 1947, when another sample of blood was sent to the laboratory for an opsonocytophagic test and culture. The report showed: No phagocytosis 40 per cent, slight phagocytosis 36 per cent, moderate phagocytosis 16 per cent, marked phagocytosis 0 per cent. Treatment was resumed and one month later, April, 1947, the culture was reported positive for *Brucella abortus*. Treatment is being continued and the patient is showing improvement.

In this case a diagnosis of brucellosis was made and specific treatment was instituted in spite of a negative agglutination test and 6 months prior to the appearance of a positive blood culture.

Case No. 3.—Man, aged 43 years, was seen February 18, 1946, at home in bed with an illness which was apparently influenza. The patient was treated for 2 weeks with no improvement and continued to have fever, accelerated pulse, body ache, headache, cough and sweats, despite intensive treatment.

After 2 weeks during which no improvement was noticed, further investigation was made with the following results: Cutler sedimentation was 5 mm. in 60 minutes. Urine sample was normal. Blood count was normal except for moderate leukocytosis and lymphocytosis. Opsonocytophagic index revealed: No phagocytosis 20 per cent, slight phagocytosis 64 per cent, moderate phagocytosis 16 per cent, marked phagocytosis 0 per cent. Agglutination tests for typhoid, paratyphoid and brucella were negative. A skin test for brucellosis was positive. The Wassermann reaction was negative.

On March 1, 1946, a diagnosis of acute brucellosis was made and the patient started on penicillin therapy. On March 20 the State Laboratory reported that the blood sent to them on March 2 for opsonocytophagic culture was positive for *Brucella abortus*. The patient made a slow recovery from the acute infection and was placed on specific treatment, using brucellin, 2 months later. Since then he has had two lesser recurrences and seems to be improving under treatment with brucellin and brucella vaccine.

In this case the diagnosis was missed for 2 weeks and the patient treated for influenza largely due, I suppose, to the fact that he had every clinical manifestation of influenza and was a New York business executive living in a metropolitan area, not supposed to be subject to undulant fever. However, the diagnosis was made and the treatment instituted on the basis of the history, physical examination, positive skin test and positive opsonocytophagic index. Brucellosis was later proved by positive blood culture.

I feel that these three incidents illustrate the fact that there are positive cases of undulant fever (even in our metropolitan practices) which will be missed if we set up a hard and fast rule requiring a positive agglutination test or positive blood culture or both.

There is a great deal of controversy over the value and the meaning of the various tests available in undulant fever, especially the skin tests and the opsonocytophagic index. The physician who will acquaint himself with the values and variations of the procedures available will not hesitate to make a diagnosis of probable undulant fever in a case which seems to warrant it, even when he cannot demonstrate a positive agglutination test or a positive blood culture.

The writer had sixteen other cases (not reported here) in which positive agglutination was obtained. However, in the three cases reported the agglutination test and culture were negative.

SUMMARY

Three cases of brucellosis are cited in which agglutination tests and cultures were negative when the diagnosis was made. Treatment for brucellosis was instituted on the basis of history, physical examination, positive skin test and the opsonocytophagic index. The presence of brucellosis was proved later when agglutination tests and cultures were made and were found positive.

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Conjunctivitis

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The importance of conjunctivitis in your practice depends considerably upon where you practice. In some countries where trachoma is prevalent, diseases of the conjunctiva constitute 90 per cent of an ophthalmologic practice; in other locations they constitute a very small part. The average is 30 per cent. Upon the location depends not only the amount of conjunctival involvement, but also the type. Infectious conjunctivitis of the Koch-Weeks type is very common in New York; the pneumococcic type is frequently encountered in Omaha, while the Morax-Axenfeld type is predominant in Montreal.[1] Besides these three common types, infections with Bacillus xerosis, gram positive cocci, and staphylococci of different kinds are fairly frequent. Though the gonococcus is not so frequently seen now, it is extremely important because of its devastating effect. This is also true of diphtheritic conjunctivitis which is quite rare and of trachoma which is rare in most parts of this country, but must always be kept in mind. Inclusion conjunctivitis is found in infants as inclusion blennorrhea and in adults as swimming pool conjunctivitis.

In addition to these mentioned, many organisms may affect the conjunctiva including viruses, tubercle bacilli and Treponema pallidum. Besides the infectious type of conjunctivitis, which is caused by a microorganism or parasite and may be air-borne or waterborne, there are the exogenous and endogenous types. The exogenous types are mechanical, chemical, thermal, radiational, electrical, and allergic. Endogenous disease may be one of three types: (1) Blood or lymph-borne and metastatic in nature, gonorrheal, tuberculous, etc., (2) an allergic reaction to a remote focus or a local expression of some general metabolic disturbance, (3) spread from disease of the lids or nearby skin.

Not only must all of the possible causative factors be kept in mind in the diagnosis and treatment of conjunctivitis, but also other diseases of the eye which may be confused with conjunctivitis or complicating it must always be considered. The three most important of these are keratitis, iritis, and glaucoma. Keratitis may frequently complicate conjunctivitis; this is especially true of pneumococcic conjunctivitis. Conjunctivitis may also be secondary to keratitis. Superficial involvements of the cornea can be and often are overlooked. Good light, good magnification, and especially the use of fluorescein stain will prevent this oversight. Noting carefully the injection of the conjunctiva, the appearance of the cornea, the depth of the anterior chamber, the appearance of the iris, the character of the pupil, together with taking the intraocular tension will obviate the failure to recognize iritis or glaucoma.

In conjunctivitis the conjunctiva is loose, edematous, inflamed. The inflammation is most marked at the fornix and fades towards the limbus. This is not true in iritis where the paralimbal injection is most marked and fades towards the fornix.[2] The pupil is irregular and the color of the iris changed. There is more or less exudate on the anterior capsule of the lens and

around the pupillary margin of the iris. Usually the pain centers over the brow.

In glaucoma the redness is more towards the periphery than in iritis, the cornea is steamy to a greater or lesser degree, the anterior chamber may be shallow, and the pupil is usually dilated to some degree. In acute cases, which are the only ones giving inflammatory reaction, there is usually pain centered in the eye. Occasionally the chief location of pain is in the head.

The vision is considerably more disturbed in iritis, glaucoma, and keratitis than in conjunctivitis. The tension is increased in glaucoma as shown by the tonometer. There is always discharge in acute conjunctivitis, which is not present in iritis and glaucoma. Lacrimation frequently occurs in iritis.

Conjunctivitis may be said to exist, clinically, wherever a conjunctival hyperemia is accompanied by a discharge. Any condition which interferes with the normal flow of tears predisposes to infectious conjunctivitis. Bacteria are always present but the tears normally contain an antibiotic which destroys bacteria unless present in great numbers and of great virulence. The use of an anesthetic in the eye decreases tearing; therefore, the use of a local anesthetic in the eye should be avoided as much as possible.

One of the common clinical types of infectious conjunctivitis is acute catarrhal conjunctivitis (simple acute conjunctivitis) which is a condition brought about by infection of the conjunctival mucosa. This is characterized by marked hyperemia with mucopurulent discharge which tends towards spontaneous recovery. Many different organisms may cause acute conjunctivitis. A single type or a combination of various types may be responsible. The clinical picture is typical and unmistakable.[3] There is a marked red hyperemia of the conjunctival type, most intense near the fornices. The conjunctiva itself is swollen and velvety and loses its translucency, showing on close inspection vascularized papillae in the tarsal regions. Discharge is at first watery owing to reflexly increased lacrimation, but soon becomes mixed with mucus and frequently ropy with desquamated epithelium; eventually the outpouring of leukocytes gives it a mucopurulent character. Apart from adherent shreds of mucus, little discharge collects in the sac; it clogs the lashes where is becomes inspissated especially near the inner canthi. The lids may become swollen and the surrounding skin excoriated by the discharge.

The symptoms originally somewhat resemble those produced by a foreign body in the eye—a feeling of burning or smarting, almost amounting to pain when the eyes are used; increased lacrimation, and photophobia. The feeling of "sand in the eyes" is probably due to the vascularized papillae rubbing on the cornea. The vision itself is unaffected except that a shred of mucus adherent to the cornea will cause a blurring as if looking out of a dirty window.

The prognosis is almost invariably good, the disease usually rising to a maximum in a few days and subsiding in from 10 to 14 days. When treatment is inefficient, chronicity develops and in especially debilitated subjects serious complications may ensue. The cornea is usually involved to some extent in the serious cases. An increase in pain or photophobia may indicate the onset of keratitis, usually punctiform in type. Arthritis may also develop in severe cases, especially if the pneumococcus is the offending organism; even hypopyon may develop.

The diagnosis is evident from the clinical picture, but should be confirmed by bacteriological examination. In can be distinguished from blepharitis by the fact that the lid margins are normal when the secretions have been removed.

Prevention is always the best treatment. In the fact of an epidemic or where some general infection, such as pneumonia, meningitis or any exanthema, might be followed by an acute conjunctivitis, prophylactic use of zinc sulfate or penicillin ointment, or both, is in order. With the advent of infection cleanliness is the important factor, together with appropriate medication. The eyes should not be bandaged; the free flow of tears aids in the battle against the infection. Free access to air protects the cornea and permits it to continue its respiratory function, that is, the cornea has ability to absorb oxygen from the air and permit escape of carbon dioxide from the anterior chamber. Use of the eyes should be avoided and they should be protected from bright light. The eyes should be irrigated frequently and thoroughly with a nonirritating solution; my preference is for alkalol. Bicarbonate of soda solution may be used; alkaline solutions are more effective in eliminating the secretions whereas acid solutions have a tendency to congeal them. Silver salts have been highly recommended, but I have found zinc sulfate in a boric acid solution more effective. Recently I have been using penicillin solution, 500 to 1000 units per cc. as an eye bath, using an eye cup. This would seem to be the treatment of choice until the laboratory report has been received, since penicillin is effective against meningococci, pneumococci, and gonococci. It may not be effective against the Koch-Weeks type of infection, and is not effective against the virus infections. Sulfonamide ointments should be avoided except in trachoma as they frequently produce severe reactions and, at times, sensitize the patient to the drug. The use of an ointment at night prevents the adhering of the lids and penicillin ointment may be used for this purpose. However, in severe cases it is well for the patient to use the penicillin eye bath every 3 or 4 hours around the clock. The effectiveness of this treatment when the offender is penicillin-sensitive is spectacular and usually clears the condition in a very few days. Where gonococci are found to be the offending organism, penicillin should be given intramuscularly in connection with the local treatment. Cold compresses are very acceptable during the first few days; later heat gives more comfort. Where considerable edema of the lids is present, the lids should be stretched to prevent interference with circulation and thereby prevent necrotic changes in the cornea. Tense lids compress the eye and have this very deleterious effect upon it.

Special clinical forms of catarrhal conjunctivitis are:

1. *Acute Catarrh with Swelling.*—The characteristic features are tumefaction and marked hyperemia near the fornices where large retrotarsal folds appear, and swelling and redness of the lid. In the secretion, which is mucopurulent, staphylococci, streptococci and pneumococci are most commonly found. This type, which appears in epidemic form, affects especially scrofulous children, particularly if they have eczema of the face.

2. *Koch-Weeks Conjunctivitis.*—This acute epidemic purulent conjunctivitis, or pink-eye, caused by Koch-Weeks bacilli, forms a clinical entity with special

features, most of which it shares with pneumococcic conjunctivitis. It occurs most commonly in spring and attacks people of all ages, except very young children, and is extremely contagious. Contamination may be direct or indirect. Both eyes may be inflamed at the same time or the second may develop symptoms a few days after the first. Symptoms arise 36 hours after infection and the hyperemia is intense, sometimes associated with petechiae which give the condition its name of "pink-eye." The inflammation reaches its height on the third or fourth day; after that time no intracellular bacilli are found. It subsides in from 10 to 14 days, but may last longer, especially if treatment is neglected. Recurrences are rather frequent where treatment is not continuous and adequate. Corneal complications are rare, but can be grave and have been known to produce central perforation. Treatment is the same as that already outlined.

3. *Pneumococcic Conjunctivitis.*—This type is very difficult to distinguish from Koch-Weeks type. The pneumococci produce a more flocculent secretion than Koch-Weeks bacilli and also produce multiple subconjunctival hemorrhages, especially under the upper lids. The toxin from the pneumococcic conjunctivitis may produce iritis and even hypopyon. The treatment is the same as that of acute, simple conjunctivitis, but emphasis is placed on the use of penicillin.

4. *Influenzal Conjunctivitis.*—This rare form is usually associated with influenza epidemics. The inflammation is usually mild. The treatment is as previously given.

5. *Exanthematous Conjunctivitis.*—In several of the exanthemas, particularly measles, an acute catarrhal conjunctivitis is the rule. Measles may be transmitted by the conjunctival secretions and it is suggested that a specific virus is sometimes present. In German measles conjunctivitis is quite mild and precedes the rash by 2 to 3 days. In scarlet fever a mild catarrhal conjunctivitis frequently occurs during the stage of eruption and a second, and sometimes more severe, attack may occur during the period of desquamation. In severe cases, especially in weak children, the virulent streptococcal croupous or membranous conjunctivitis may occur. Penicillin treatment is very much in order in these cases.

6. *Endogenous (Metastatic) Catarrhal Conjunctivitis.*—This type may occur in cases of septicemia due to staphylococci and streptococci. The inflammation is extremely severe and tends towards necrosis of the conjunctiva.

7. *Endogenous Gonococcal Conjunctivitis.*—This acute catarrhal conjunctivitis with benign characteristics occurs bilaterally in the course of a generalized gonococcic infection, usually associated with arthritic manifestations and rarely involving ocular complications. These patients, in my opinion, should have not only the local treatment and penicillin intramuscularly, but also hyperpyrexia treatments, which benefit them greatly.

8. *Endogenous Meningococcal Conjunctivitis.*—It is possible to have a meningitis following meningococcal conjunctivitis.

9. *Conjunctivitis in Bacillary Dysentery.*—The ocular disorder appears between the fifth and twelfth day after onset of dysentery and frequently is associated with polyarthritis. It may be associated with urethritis, producing a conjunctivo-urethro-synovial syndrome. The conjunctivitis is metastatic in nature and is characterized by hyperemia and no discharge, in some cases severe uveitis develops.

A type of acute conjunctivitis was described by Widmark in 1909, and is known as "Widmark's conjunctivitis." It is of unknown etiology and is characterized by congestion in the bulbar conjunctiva below the cornea and in the corresponding tarsal conjunctiva of the lower lid. Fluorescein stain will show small defects in the epithelium, or even larger denuded areas. Congestion is preceded by considerable pain. Yellow oxide of mercury is effective.

Epidemic Keratoconjunctivitis or "Shipyard" Conjunctivitis.[4]—This condition has been fairly common during the past few years. It is characterized by acute conjunctivitis, often unilateral, with periorbital gland involvement and punctate keratitis which is superficial and develops after the conjunctivitis. The sulfonamides and penicillin have no effect in the treatment. The most effective treatment is convalescent plasma or serum administered before the fifth day of the disease.

Morax-Axenfeld Conjunctivitis.—Under common forms of conjunctivitis we must include angular conjunctivitis or the conjunctivitis of the Morax-Axenfeld diplococcus. This organism produces a subacute conjunctivitis that tends to become chronic and recurrent. It affects both eyes, the skin in the region of the canthi, especially the external canthi, and the lid margins as well as the conjunctiva. Symptoms start suddenly with irritation, itching and smarting, and the appearance of redness which has its typical distribution. Because of the skin involvement, it may be confused with some of the milder types of allergic conjunctivitis. The important distinguishing characteristic is the stringy, greyish-yellowy mucopurulent discharge of the Morax-Axenfeld infection, but this discharge is never very abundant. There is no tendency for spontaneous cure. If adequate treatment is not continued for some time the condition will drag on for months or indefinitely with the formation of papillae and follicles. A chronic blepharitis will develop. However, there is a specific treatment, 1 gr. of zinc sulfate to 1 ounce of 4 per cent boric solution. This treatment must be continued over a long period even though the inflammation has subsided, for recurrences are frequent. The use of yellow oxide of mercury ointment inside the lids at night is very beneficial. Where blepharitis has already developed, the use of the water-cooled quartz light to the margins of lids and skin around lids has real value which should be taken advantage of.

There are many chronic forms of conjunctivitis and blepharitis which could well be considered common and could easily come within the scope of this paper. Most of these have such involved background for diagnosis and treatment that they cannot rightly be classified under the jurisdiction of a general practitioner.

Several references have been made to the gonococcal infection. Though I do not consider this serious problem as coming under the heading of common forms, I would like to make one or two statements about it. First, in the matter of diagnosis, edema of the upper lids is the usual first sign, the marked edema and redness of the lids preceding the discharge. Though gonococci cannot be recovered from a swab taken from the membranes of the eye during the first few days, a scraping from the membrane will disclose them in great numbers. The advent of the sulfonamides changed the prognosis of this infection from bad to fair; the advent of penicillin has changed it from fair to good. The early and adequate use of

penicillin, both locally in the eye bath and ointment and intramuscularly, banishes this infection in a short time. However, treatment should be continued for sufficient length of time to avoid relapse. Trachoma, another devastating infection of the eye, is yielding to the sulfonamide treatment used systemically and locally.[5]

I have made reference to allergic conjunctivitis. This is a condition which we are meeting much more frequently than in the past. It should be classified under two headings, seasonal, or vernal, and nonseasonal, which is produced by any one of many allergens, chief of which are in cosmetics. The vernal type produces abundant follicles, at times so marked that they may be confused with trachoma. Sticky mucus is present and very disturbing; the outstanding symptom is extreme itching. The condition is found most often in young persons, especially girls. Ariboflavinosis has been named as a probable cause of vernal conjunctivitis.[6] Treatment consists of elimination of the offending allergen, use of mild alkaline irrigations, and a solution containing adrenalin, together with the use of an ointment containing holocaine or phenacaine to help control the itching and irritation. Cool or cold compresses are most acceptable. Desensitization to offending pollen or other allergens is often successful, especially preseasonally.

In the nonseasonal type of allergic conjunctivitis, the skin over the lids and surrounding areas is as frequently involved as the mucous membrane. Discharge is watery or mucoid and never mucopurulent, unless a secondary infection develops. Careful history may disclose the offending agent. Skin tests are useful at times. Treatment consists of avoidance of the offending allergen, desensitization, alkaline irrigations, adrenalin, and the use of ointment over the lids and involved skin. Fortunately this condition comes on so suddenly after coming in contact with some plant[7] or new cosmetic that often it is possible to identify the cause and eliminate it immediately. If the possibility of allergic conjunctivitis is not kept in mind, it will frequently be treated as an infectious process. This will result in aggravation of the condition and delay the recovery. In all inflammatory conditions of the eye, the use of the eyes is contraindicated. If conjunctivitis is treated adequately, it rarely, if ever, becomes serious.

SUMMARY

1. General statements regarding conjunctivitis are made.

2. A classification of conjunctivitis is given.

3. The symptomatology, etiology, diagnosis, and treatment of several common types of conjunctivitis are discussed.

4. Reference is made to several less common types of conjunctivitis.

5. The importance of recognizing keratitis, glaucoma, and iritis is stressed.

6. The importance of treating conjunctivitis seriously and adequately is emphasized.

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VA RESEARCH ON HEART DISEASE

Intensive research into heart disease—which claims the lives of more veterans than any other disease—will be centered at the Veterans' Administration Mount Alto Hospital in Washington, D. C., VA disclosed on October 12.

The new research center, a part of which already is in operation, was developed under the supervision of Dr. George P. Robb, widely known cardiologist and assistant medical director of the Metropolitan Life Insurance Company. He will continue as consultant to the cardiovascular research unit.

In addition to being the most frequent cause of death among veterans, heart disease is one of the most frequent causes of morbidity requiring extensive hospitalization of veterans.

The research center will conduct scientific investigations of cardiovascular physiology and pathology employing modern methods of study such as angiocardiography, cardiac catheterization and electrocardiography with the direct purpose of improving the diagnosis and treatment of veterans.

It also will serve as a training center for VA doctors by providing postgraduate study and resident training for certification by the American Board of Internal Medicine.

It further will provide consultation service in cardiovascular disease through treating difficult and selected cases and those cases requiring special diagnostic procedures not elsewhere available.

In addition, the center will provide a consultation service to VA medical supply section through evaluation of new instruments and equipment.

To provide the most efficient service, the center will have eight major functions: treatment, clinical research, cardiovascular roentgenography, cardiac catheterization and hemodynamics, electrocardiography, pathology, statistical research, and postgraduate teaching. Ultimately departments for research in biochemistry and biophysics will be added.

All the newer, modern, safe methods of studying the behavior of the human heart will be employed in the center—cardiac catheterization, special x-rays of heart and blood vessels, and thorough electrocardiography.

One of the initial projects of the center will be to perfect a comparatively new technic of x-raying the internal structures and behavior of human hearts. A special opaque substance is injected into the veins and as this substance is swept through the heart chambers and large vessels it casts shadows which show up on x-ray films. The entire prpcess requires about 8 seconds, but during that period, a thorough examination of the heart in action may be made without damage. This method is used to diagnose obscure heart and chest conditions which cannot be settled by simpler means. In many cases operations are thus found to be unnecessary, while in others, the need for operation becomes clear. This technic was originally developed by Dr. Robb and associates at Bellevue Hospital, New York.

Dr. Robb is a graduate of Indiana University School of Medicine. He conducted research projects in the Thorndike Laboratory of the Boston City Hospital, and Harvard Medical School, Boston, Mass.; in Bellevue Hospital, New York City, and in the New York University College of Medicine.

During World War II, he was chief of the cardiovascular and electrocardiographic departments at the Army's Walter Reed General Hospital in Washington, D. C. He is now consultant in cardiology to the Secretary of National Defense.

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EXPLICIT APPROACH TO THE PREVENTION OF DEGENERATIVE DISEASES, INCLUDING CANCER

The lead article in this issue of THE JOURNAL should have the careful reading of every member of the profession. The writer submits the premise that a close relation exists among many degenerative conditions, including cancer. He maintains that as part of and strengthening this overall concept of close linkage between degenerative tissue changes, an associated, repetitive phenomenon of functional imbalances of the autonomic nervous system, together with certain endocrine disturbances, and alterations in body metabolism, have been observed to occur with great regularity and frequency. He points out that in these degenerative diseases the involuntary nervous system dysfunctions have been manifested most frequently as vagotonia. Together with vagotonia the associated degenerative conditions have presented evidence of variable degrees of hypothyroidea or thyroid deficiency states. In addition cholesterol, a normal constituent of the body, has been found commonly to be present in the blood in increased and sometimes in greatly excessive amounts.

To the best knowledge of the writer the phenomenon consisting of the triad—vagotonia, hypothyroidea, and hypercholesterolemia—and its significance in reference to degenerative diseases as a probable primary tissue-conditioning factor that favors their inception and progression, has not been reported and explained previously in such broad relation.

The article, which is an abstract of a much larger report, is based on a study of over 4,000 privately treated patients suffering from degenerative diseases. The writer concludes from this study that factors which contribute to or which cause thyroid deficiency states and conditions of autonomic imbalance, with syndromes of hypothyroidea and vagotonia, thereby favoring abnormal cholesterol metabolism, include pituitary and adrenal deficiency, reticuloendothelial disturbances with blocking of the reticuloendothelial cells, especially those of the liver and spleen, and deficiencies in vitamins, minerals, fats, protein, carbohydrates, oxygen and other nutrient elements. He says that many of these factors are influenced by geographic conditions and cultures as patterns of living, and overlapping symptoms of degenerative diseases strongly indicate that the disorders are caused by multiple, rather than by single environmental factors.

The writer names some natural, geographic, and man-made environmental factors, which he says may be responsible for systemic weaknesses and cancer irritants. For example, accumulating evidence strongly indicates that the high cancer rate in some large cities may be directly related to the use of chlorine-treated drinking water, which favors systemic deficiencies, and to smoke polluted atmosphere, which contains cancer tar.

From the preventive and public health standpoints, the writer outlines a definite program:

1. Volunteer reporting of degenerative diseases by physicians on a nation-wide basis
2. Permanent research in relations between nutrition and health
3. Expanded health examinations of school children to include periodic radiographic postural studies and evaluation of thyroid functions
4. Restraint of degenerative diseases with correction of physical and mental disturbances
5. Prevention of goiter
6. Elimination of smoke-caused atmospheric pollution
7. Soil conservation with correction and prevention of soil erosion
8. Standardization of foods sold in public markets
9. Standardization of water supplies and treatment of water
10. Further studies of agents reported to be hazards to health
11. Public education for positive health.

BIOTHERAPY IN CANCER

In cancer the negative value may be as dominant as the positive or the changed nucleoprotein complex may be accomplished by the loss of some factor.[1] Urine bearing such substance (recovered from patients with malignancy[2]) caused, when injected, disintegration of malignancies in rats and abortion in pregnant rats, thus showing predilection for embryonic tissue and for neoplasm.

The antireticular cytotoxic serum (ACS) of Bogomolets gives evidence of containing a quality capable of acting upon malignant tissue or of causing a reaction in the reticuloendothelial system which hinders prosperity of the malignancy. Similar claims have been made by other investigators for other serums, but on a less substantial foundation.

1. Berrill, N. J.: Malignancy in relation to organization and differentiation. Physiol. Rev. 23:101-123, April 1943.
2. Elsasser, T. H., and Wallace, G. B.: A selective action of urine and serum from patients with malignant tumors on embryonal and newly growing tissues. Science 89:250, March 17, 1939.

In the Trenery Memorial Lecture, 1944, Dressler[3] touched upon the reciprocal relation between such carcinogenic agents as benzopyrene and the chemical factors in cholic acid, the sterols and sex hormones. He implied that the osteopathic approach to the body as a whole (presumably in that manipulative treatment could be a means of modifying hormone balance) held some promise in the control of cancer. This concept is buttressed by the work being done at Memorial Hospital pointing to the acceptance of cancer as a systemic disease.[4]

Opposed to the negative is the possibility that introduction of a complex protein molecule incites change in the nucleoprotein complex or instigates somatic mutation, a theory advanced by Boveri and resurrected by Furth.[5]

The virus theory of Rous which this writer[6] entertained is thus linked with that of Boveri and does not conflict with that of Cohnheim.

The milk agent of Bittner, which formed the basis for an editorial by Hulburt,[7] is readily reconciled with the virus theory and does not necessarily conflict with the genetic theory or with the theories of Boveri and Cohnheim.

A line of inquiry is serviceable only in so far as it contributes knowledge in its sphere and does not impose restrictions or close the door to diverse reasoning or research. In society, as constituted, little can be done about genetics or embryonic cell rests. Anything that may be accomplished to prevent loss of the Elsasser-Wallace factor or introduction of the Bittner principle to maintain a biochemical balance which operates against nucleoprotein mutations to or neutralize or nullify virus is commendable. In the past therapy has outdistanced its rationale and has often been the springboard of research rather than the product. If biophysics can alter biochemistry or if an agent antithetic to carcinogens can be supplied even though the rationale is obscure, much can be gained.

One line of cancer investigation has followed the influence of bacteria and bacterial products on the tumor. This is a distinct division of biotherapy which itself is but one of the many fields of investigation of the subject. Eliminating consideration of immunologic methods and the injection of tissue lysates and hormones, there remains the direct impact of bacteria and their lysates on the malignancy.

That there is a predilection of some micro-organisms for tumors was shown as early as 1891 by Coley, who reported an inhibiting action of streptococci. Sporadic interest in this approach was shown and equivocal results obtained either because of ineffectiveness or of toxicity. Recently Klyueva[8] reported on investigations in biotherapy for cancer. His work was based on that of Roskin[9] who showed that Schizotrypanum cruzi, which multiply in the heart, liver, spleen, marrow, and lymph glands (reticuloendothelial tissue), have an affinity for malignancy and cannot be found elsewhere when introduced into a tumor-bearing animal. In 1939 Klyueva and Roskin prepared an endotoxin of trypanosomes killed by heating. The endotoxin had the same effect on the malignant cell as the live culture. Roskin, in 1941, for the first time, injected a patient with the endotoxin (named KR) and it was found that small doses were harmless but caused the destruction of the new growth. These investigations, interrupted by the war, were continued in 1944. Parenteral injection of the cancerolytic substance KR was made in patients suffering from malignant growths. There first appeared softening of the tumor, then fluctuation and discharge through fistulae. Regression was in proportion to the dosage used. The number of cases reported is small but covers cancers of the larynx, esophagus, breast, lip and cervix, several of which were inoperable or otherwise incurable. The report conveys the impression of favorable results obtained in 50 to 60 per cent of the patients treated.

This work, while of intense immediate interest, is reminiscent of the earlier and discredited essays of Koch and Hett in this country and Canada, a re-evaluation of which might be profitably considered.

L. V. Strong, Jr., D.O.

3. Dressler, O.: Some intimations of an osteopathic background in the etiology of disease, with special reference to the malignancies. Osteop. Med. (Philadelphia College of Osteopathy) 2:185-190, July 1944.

4. Rhoads, C. P.: Cancer as a systemic disease. Am. Rev. Soviet Med. 4:333-342, April 1947.

5. Furth, J.: Recent experimental studies in leukemia. Physiol. Rev. 26:47-76, Jan. 1946.

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GROSS STRUCTURAL STUDIES ESSENTIAL IN OSTEOPATHIC RESEARCH

There appeared recently in *Science* an article by S. I. Frankstein* which is of significance to osteopathic physicians generally and to our colleges particularly. The writer quotes from experimental data showing that inflammation in one limb results in postural tonus effects in all limbs and draws the following conclusions:

(1) Inflammation different from mechanical and electrical stimulation causes *prolonged and persistent* excitation in the nervous system. Instead of the transient changes of stress in the legs of decerebrated animals which [are] caused by electrical or mechanical stimulation, a persistent change of the tonus is observed. . . .

(2) Stimulation produced by the inflammatory process as well as electrical or mechanical stimulations causes reaction not only in the injured limb but also in other concomitant limbs.

In the normal, uninjured nervous system this additional part of reaction remains latent, being compensated by the nervous system . . . Without such a compensation, *inflammation in the hand should unavoidably result in limping.*

(3) The organism is forced to compensate, to conceal also *the traces* of excitation left by the inflammatory process in the nervous system . . . decerebration of the animal performed soon after healing of the pathological process disturbs this compensation, and, in spite of the healing of the injury, the leg takes the posture which earlier had been due to inflammation. Thus, the recovery of the animal, the restoration of normal function of the injured limb, is determined not only

*Frankstein, S. I.: One unconsidered form of the part played by the nervous system in the development of disease. Science 106:242, Sept. 12, 1947.

by *healing of the tissue injury,* as is assumed now in general pathology, but also by *compensation of traces of pathological excitation in the nervous system.*

This study, published so unobtrusively, serves as a reminder of the impressive significance of mind and structure in the maintenance of health. Here, in tangible form, is a mechanism by which postural problems are related to inflammatory processes, and also by which mind, acting as a compensatory force, may influence not only the postural state, but the inflammation as well.

This is the type of research that our osteopathic laboratories could well be engaged in. Structural mechanics represent an almost virgin field of investigation that would go far to solve many of the practical problems of osteopathic therapeutics. Excursions into new concepts can come only following intensive application, and often then only after long study upon seemingly unsolvable problems. Much of this work does not require large subsidies, but can be performed with present equipment and personnel. Today the need for an extension of osteopathic service is accentuated by the great demand for osteopathic care. Our overworked doctors need refinements and advances in manipulative procedures to do adequately what is expected of them.

Frankstein's article immediately poses many questions, for example: What factors influence the latency of this "unconsidered form"? If this process involves the limbs, does it also affect the trunk and head? Will inflammation of the sacrum have influences in the occiput? What is the degree of latency? And, can this phenomenon be harnessed and utilized in a practical way?

These are practical questions whose affirmative answers would make the doctor's work easier and more effective. They imply the need for gross structural studies as much as those on the individual spinal joint lesion. They suggest, also an enquiry into the physiology of muscle under conditions mentioned above, as well as in postural adjustments. At the present time, when the colleges are presenting an appeal for support from the profession, they must also give back to the profession added knowledge and efficiency of osteopathic methods. The only research justified under the limited financial resources of our schools is osteopathic research. The continued existence of our schools can be justified only by an active application of osteopathic principles by our graduates. The future of the profession rests in published research.

THOMAS J. MEYERS, M.A., D.O., F.A.C.N.

"WATCHMAN, WHAT OF THE MORROW?"*

On July 22, 1935, Dr. George W. Riley of New York addressed the Thirty-Ninth Annual Convention of the American Osteopathic Association in Cleveland, Ohio. His paper was titled "Watchman, What of the Morrow?" a paraphrase of the title of John Bowring's famous song "Watchman, Tell us of the Night." Those who have not read this address should refer to *The Journal of Osteopathy,* [Kirksville, Mo.] issues of January and February, 1938. It is good reading and potent food for thought.

In this address, Dr. Riley made reference to the determined, and not always fair, tactics of the dominant school of medicine in its efforts to discourage the early practitioners of the osteopathic school and their attempts at professional organization. He referred to his then thirty-two years of close association with organized osteopathy as a period in which the future of osteopathy was ever at stake but a period, too, in which more battles were won than lost. And then he said, "With this record back of us, what are we facing? We are facing just as determined opposition as in the years gone by. Discriminations against osteopathy are constantly and continuously appearing in newly proposed legislation. . . ." If that were said today, instead of in 1935, it would still be true.

How were these battles, and others since, won? The answer is organization coupled with belief and faith in a therapy.

Today the osteopathic profession is in a most enviable position. Those thirty-nine years, and twelve more since, have seen the American Osteopathic Association develop to the point where it and its affiliated . . . divisional organizations constitute a watchman par excellence for the "morrow" Dr. Riley spoke about. In fact it has been the watchman these many years that has brought the profession through infancy and childhood to full seniority. As a result the opposition now is changing its tactics from suppression to subtle elimination. In the past it would suppress us through legislative restriction. Now it would open the door to the "magic" of general medicine in the hope that we will so far forget and discard our fundamentals as to eliminate ourselves. That happened to the homeopaths, among others.

Our watchman has worked hard in the past, but he will have to work much harder in the future. Watchmen are generally underpaid. Ours certainly has been for what he has done for us, but fortunately he has just been given a raise and that is good.

On June 1, 1948, membership in the American Osteopathic Association will cost $50 annually, instead of the present $30. Fifty dollars a year is less than $1 a week, but even so, it is "cash money" as they say. What does it buy us? Only security, the right to make a living as a doctor of osteopathy, the satisfaction gained from easing pain and making sick people well and an independent existence. It is hard to conceive a better buy for, let no one be deceived, the American Osteopathic Association represents the best all-round insurance any osteopathic physician ever had offered to him. It keeps us in business—and a good business.

In short, when the time comes to pay our national association dues next spring, let's keep these things in mind and forego the usual grumbling about everything being more and more expensive. If our watchman isn't kept well fed, his efficiency must suffer—and so will we.

O. C. LATIMER, D.O.

*Reprinted by permission from *Contact,* official bulletin of the Osteopathic Society of the City of New York, October, 1947.

ANOTHER PAST PRESIDENT DIES

Schuyler C. Matthews, one of the founders of the American Osteopathic Association and its second president (1898), died at his home in Brooklyn, October 16. He was 80 years old and had been a member of the Association continuously since its organization over a half century ago.

Dr. Schuyler C. Matthews

The death of Dr. Matthews brings the total to five past presidents who have passed away this year; the others were A. D. Becker, Ray B. Gilmour, John A. MacDonald, and O. J. Snyder.

Dr. Matthews was born in Kirksville, Mo. He was educated at the Kirksville State Normal College, graduating in 1891, a year before Andrew Taylor Still opened the first school of osteopathy.

As a young man he taught for 5 years in Missouri public schools and served as principal of schools in a town near Kirksville. Meanwhile he studied law and in 1893 was admitted to the Missouri bar. He became interested in osteopathy, entered the Kirksville college (American School of Osteopathy), and graduated in 1898.

Dr. Matthews began the practice of his profession in Wilkes-Barre, Pa., where with Dr. Virgil Hook he founded the Atlantic School of Osteopathy. In 1900 he moved to New York City and practiced there until his last illness.

Dr. Matthews was active in organizational work throughout his career. He was influential in securing the first legal recognition of osteopathy in New York State. He was on the program of the Eastern Osteopathic Association convention, April 2, 1944, and his address was published in OSTEOPATHIC MAGAZINE for June, 1944.

Last year Dr. Matthews was Honorary Chairman of the New York Committee during the Fiftieth Annual Convention of the American Osteopathic Association in that city. This past summer in Chicago the Board of Trustees of the Association awarded him a Certificate of Honorary Membership in recognition of his long years of service to the profession.

"HOW TO PICK A DOCTOR"

Under the above title the *Woman's Home Companion* for November published an article by Albert Deutsch purporting to give good advice to persons seeking a doctor. Full page advertisements of the article appeared in many daily newspapers throughout the country. Among the statements made in the article and in the advertisement were the following:

"One of the best ways to pick a doctor is to pick a good hospital. . . . First, find out which is your town's best hospital. Aside from its general reputation in the community, be certain it is on the Approved List of the American Medical Association. This list can usually be obtained at your free public library. If the hospital is also approved by the American College of Surgeons you have even greater assurance that it meets good standards. . . .

"To learn the background of a particular doctor without asking him directly, you can consult the American Medical Directory, published by the American Medical Association. This fat volume is in most public libraries, hospital offices and medical society headquarters. It lists, alphabetically and geographically, the name of *every* [italics ours] doctor in the United States. . . ."

Within a few days after the appearance of the magazine on the newsstands, a letter of protest was mailed to the editor of *Woman's Home Companion*. It was pointed out that readers of the article who have become accustomed to complete health care from their local osteopathic physician and surgeon would not understand the complete elimination of any reference to osteopathic physicians and osteopathic hospitals. Educational literature was included in the letter. At the time of going to press no answer has been received. The editor cannot plead ignorance of osteopathy on the premise of lack of information. Many months ago his office was furnished with literature about osteopathic colleges and hospitals.

It is expected that many members of the profession will write letters to the editor of *Woman's Home Companion*, 250 Park Ave., New York 17, N. Y., protesting the discrimination apparent in Deutsch's article. Copies of the letter which went out from Central office may be obtained on request.

CONSTRUCTION OF ASSOCIATION HEADQUARTERS BUILDING WELL UNDER WAY

Your new Association headquarters building at 212-216 East Ohio St., Chicago, is actually going up. The foundation is in and construction well under way. However, progress always has its price, and each member will want to pay his share.

Divisional societies have been assigned quotas (based on $30 a member), but thus far only twenty-one societies have reached or oversubscribed their goal.

Your contribution not only will help your divisional society to reach its quota so it can take its rightful place on the Honor Roll, but also will entitle you to listing in a special book of contributors which will be on display in the new building. Visitors to your national headquarters will be interested in this Honor Roll of "builders."

With the prompt response of those who have not yet added "their brick," the Committee can pay as it builds and complete the new headquarters debt-free.

FRANK E. MACCRACKEN, D.O., Chairman,
Fund Raising Committee.

Case Histories

OSTEOPATHIC MANIPULATIVE AND SINUS THERAPY IN THE TREATMENT OF MYOPIA

RUDOLPH GERBER, D.O.
New York

A large part of my practice is devoted to treatment of the paranasal sinus either as an individual entity or in an attempt to eliminate sinus infection as a causative factor in such conditions as fibromyositis, bursitis, arthritis, fatigue, anorexia, deafness, asthma, and bronchitis. It is only by coincidence that, while treating the sinuses, my attention was drawn to the importance of sinus infection as an etiological factor in myopia.

Patients being treated for sinusitis have called to my attention the fact that while sitting on the treatment table they noticed that they could read certain lines on certificates on the wall that they could not quite make out when first being treated. Others, after treatment, have volunteered the information that for the first time they did not miss their glasses when accidentally forgetting them. My first dramatic experience is listed as case 1.

Case 1.—A boy, 14 years old, had a marked purulent sinusitis affecting mainly the left side. His chief complaints were nasal obstruction and tendency toward colds. His mother mentioned, in an incidental manner, that his eyesight was extremely poor in the left eye. Actually, he had very little vision left in the eye. Color was lost to it entirely, astigmatism was severe, and there was marked internal strabismus. Although standing close to the eye chart, he could not clearly distinguish a single letter. Objects appeared as indistinct, grey shadows. The boy had been under the care of an oculist who had prescribed glasses.

I told the mother that regardless of other causes, the constant presence of infection would certainly aggravate the eye condition. The sinuses were drained by the Proetz method. The patient was then given general manipulative treatment to the entire spine and special treatment to the eye to correct the esophoria.

For the manipulative technic to the extrinsic muscles for strabismus, I am indebted to Ruddy.[1] The eyeball is held between the thumb and index finger and very gently rotated while exerting mild pressure. This tends to overcome tension of the eyeball and to stimulate circulation and drainage. When the eyeball is well relaxed, each of the extrinsic muscles of the eye is treated. The patient repeatedly moves the eye in one direction while the thumb forces the eyeball gently in the opposite direction, that is, the eye works against resistance which increases its size and tone. Traction is also used by gently forcing the eyeball in the same direction as the patient looks. It acts as a most powerful stimulant.

This technic was offered as a treatment for strabismus but, in the absence of this condition, it has proved in my experience a tremendous aid in myopia. In this case results were satisfactory far beyond expectation. The youngster began to see more clearly from the first treatment. Living quite a distance away he was unable to come in more than once a week. He has been having treatment now more or less steadily for about 2 years. At present he can distinguish all colors and objects and can read newsprint. His vision is 14/20, that is, he can see the 20 foot line at 14 feet whereas he could not even see the 200 foot line at 0 feet when I started treating him. His eyes were refracted and it was found that glasses were not necessary for him. There has been no appreciable improvement in the strabismus, though other cases of strabismus have been helped by the treatment described.

Case 2.—A boy, 12 years of age, suffered from a purulent sinusitis, marked myopia, and astigmatism. Without glasses his vision was 14/200 and very astigmatic in both eyes. He was treated by use of the same technic, circumstances limiting treatment to once a week. With seventeen treatments his eyes had improved steadily to the point where vision was 14/13 in both eyes. At this point, upon consultation, it was found that glasses were no longer necessary as the astigmatism also had cleared up. In twenty-one treatments his vision measured 14/10, or better than normal. (We use 14 feet as that is the length of the room in which the eyes are tested.)

Case 3.—A man, aged 28 years, complained of sinusitis, bronchitis, myopia, and astigmatism. Without glasses he could not distinguish any letter at all on the Snellen chart at 14 feet. He could visualize the 200 foot line at 43 inches. If he leaned back only a bit characters on the chart would become indistinguishable. With glasses the vision in his right eye was 14/20 and 14/15 in his left. After six treatments his vision was 14/10, with glasses. With nineteen treatments, given twice a week, but irregularly, his eyes improved steadily to the point where he could see the 200 foot line at 135 inches as compared with 43 at the beginning of treatment, and at 72 inches he could now make out the 25 foot line. Unfortunately, the patient was forced to go out of town and we could not continue treatment.

A very interesting sidelight on this case (and others treated for chronic sinusitis) is the fact that after treatment for sinusitis the patient had almost no hay fever symptoms as compared with marked manifestations in previous years. It has been my belief for some time that chronic bacterial infection which appears to be most frequent in the upper respiratory tract will precipitate allergy or increase the range and seriousness of allergic manifestations already present. It is my opinion that further investigation will establish more fully the basic role of infection in allergic conditions. Stokes *et al.*[2] and Vermilye[3] have written interesting articles along these lines.

Case 4.—A woman, aged 26 years, complained of sinus headaches and myopia. Her eyes without glasses showed 14/100 vision on the right and 14/50 on the left. After fourteen treatments her vision improved to 14/30 on the right and 14/20 on the left.

Case 5.—A woman, aged 21 years, complained of sinusitis, myopia, and astigmatism. With glasses she could see less than half of the 25 foot line at 14 feet with her right eye, and less than half of the 15 foot line with the left. Without glasses she could just about make out the 200 foot line with her right eye and half of the 50 foot line with her left. After twenty-two treatments she was able to see the 10 foot line clearly with both eyes with glasses. Without glasses she could see the 25 foot line with both eyes. She could see better without her glasses than with them when treatments were started. It is interesting to note that response in the weaker eye seemed relatively greater than in the stronger one. The astigmatism virtually disappeared.

Case 6.—A boy, aged 13 years, was near-sighted and astigmatic in the right eye. An oculist had prescribed glasses. Upon examination it was found that he had a pansinusitis, with a marked predominance on the right. The right nostril was completely obstructed, the right tonsil enlarged and somewhat infected and the sinuses were considerably more tender to pressure on the right. Transillumination substantiated the diagnosis. The tonsil was cleaned by suction and swabbing with ½ per cent acriviolet. Otherwise he was given the treatment described. Response was immediate. Whereas he could see only half of the 50 foot line before, after treatment he was able to see all of the 40 foot line. After sixteen treatments he was able to read the 15 foot line. He is still being treated. He does not wear glasses; I did not choose to put a "crutch," as it were, on a temporarily weakened part. It appeared wiser to ascertain why the part was weak and to treat it accordingly.

Case 7.—One man with sinusitis, aged 25 years, suggested that we find out just what each phase of the treatment could do in itself. Not to delay relief of the sinus congestion too long, I suggested five treatments involving manipulation alone, and five sinus drainage alone. With his glasses, before treat-

ment, he could see all of the 10 foot line with his left eye and not quite all of the 13 foot line with his right eye. With four manipulative treatments he could read characters on the 10 foot line with either eye. Without his glasses he could not make out the 200 foot line at all with his right eye and could just about make it out, though very astigmatically, with his left. By the end of the fifth treatment the patient could see half of the 50 foot line with his right eye and the 70 foot line quite distinctly with his left. This would suggest that manipulative therapy alone definitely contributes to improved eyesight. By the end of the fifth sinus drainage (alone), he improved to where he could distinguish correctly several letters on the 40 foot line with his right eye and through the 50 foot line with his left, which would certainly seem to show that the sinus treatments play an important part in the progress of these cases. Treatment was unavoidably interrupted.

The question might well be asked as to which of the procedures used is responsible for the improvement in eyesight. One realizes, of course, the difficulties involved in attempting to do research in a private practice. I can not tell a patient who needs sinus drainage badly that we will omit it to see how manipulation alone will affect the eyes. Patients are interested in results—as fast as they can get them. As a matter of fact, one of the main reasons that this paper is being written is to stimulate research along these lines where facilities permit the proper use of controls.

I would like to take this opportunity to discuss an interesting phenomenon. It appears that in about 75 to 80 per cent of the cases treated for sinusitis, following the Proetz treatment and upon mobilization of the lumbosacral region of the spine, there is a sudden flush of mucus from the nose much as a sudden hemorrhage. This occurs with amazing consistency in some cases, and I have had occasion to experience the reaction myself. The fact that there is a connection between the nasal and pelvic regions of the body is well known to medical science. The division of the parasympathetic system into a cranial-sacral innervation would seem to allow a reflex connection. Rosedale[4] presents a very interesting review of this subject. He says, "In his third contribution, in 1942, Rosen[5] stated that he observed the changes of pseudopregnancy in rats following interruption of the nonolfactory nasal innervation by excision of the sphenopalatine ganglion. He suggested the possibility of a continuous nerve pathway from the vidian ganglion to the sheath and the substance of the anterior lobe of the pituitary gland; it was implied that the relationship of the nose to the genital organs may be that of nerve stimulation from the nose to the anterior lobe of the pituitary gland and that of hormonal stimulation from that source to the gonads." In the light of the phenomenon just discussed, would it not seem reasonable to assume that this relation could work both ways, that it could originate in the pelvis and that it may be of a reflex nature?

Another phenomenon that is quite dramatic is the immediate effect of cervical correction on the function of the eye. Some patients when tested immediately before and after thorough cervical manipulation are found almost invariably to manifest clearer and greater range of vision following manipulation. This has to be seen to be appreciated. This vasomotor reflex is probably mediated through stimulation of sympathetics in Budge's center in the spinal cord. The lesioned regions, by summation of abnormal impulses, probably have been depriving the eye and its associated structures of normal blood supply reflexly.

The theories concerning accommodation of the eye to distance have been many and varied ranging from Kepler[6] in 1611 to Bates[7] and Peppard[8] in recent years. It may be said that there are two schools of thought on the subject—those who adhere to the theory that the intrinsic muscles produce the necessary adjustment of the eye and those who believe that the role of the extrinsic muscles is more important. The former theory has been championed with variations by Kepler, Descartes, Young, Langenbeck, Cramer, Helmholtz, Mannhardt, Schoen, Tscherning,[9] Donders, Von Pflugk, and Luedde.[10, 11] The latter premise was promulgated first by Bates in 1920 and at present by Peppard.

It is not the prime purpose of this paper to delve into many theories. It should be stressed that in presenting these observations (and that is all that they are), the writer is making no attempt to prove or disprove any particular theory. This paper, obviously and unfortunately, may not be termed controlled scientific research. On the other hand, it is difficult to see how such findings can or should be overlooked. It is my sincere hope that those equipped for and interested in this important work may undertake research to establish the role of osteopathic manipulative therapy and sinus drainage in the treatment of the near-sighted patient, as well as the importance of the extrinsic muscles of the eye in the physiopathology of accommodation.

11 East 48th Street

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MAGNUSON APPOINTED AS ACTING CHIEF OF VA'S PROFESSIONAL SERVICES

Appointment of Dr. Paul B. Magnuson, former professor of surgery and chairman of the Department of Bone and Joint Surgery at Northwestern University Medical School, Chicago, as acting chief of Veterans' Administration Professional Services, was announced October 10, 1947, by VA.

Dr. Magnuson came to VA in November 1945 on 6 months' leave from Northwestern and from his duties as attending surgeon at Passavant Memorial Hospital and senior consulting orthopedic surgeon at Wesley Memorial Hospital, to assist Dr. Paul R. Hawley, VA's chief medical director, in reorganizing medical care for veterans.

He has been with VA since as acting chief of the Research and Education Service.

As acting head of Professional Services, which includes general medicine and surgery, neuropsychiatary, and the tuberculosis service, Dr. Magnuson succeeds the late Brig. Gen. Elliott C. Cutler, who died August 16, 1947.

Dr. Edward Harvey Cushing, former associate clinical professor of medicine at Western Reserve University, Cleveland, Ohio, will succeed Dr. Magnuson as chief of the Research and Education Service.

Dr. Cushing, a veteran of both World Wars and a graduate of Harvard Medical School, has been associated with Dr. Magnuson since July 1946 as chief of the Education Division. He has done much work in connection with the establishment of VA's residency training program for doctors in many of its hospitals.

Department of Professional Affairs

WAYNE DOOLEY, D.O.
Chairman
Los Angeles

BUREAU OF HOSPITALS

FLOYD F. PECKHAM, D.O.
Chairman
Chicago

JOKERS IN HOSPITALIZATION POLICIES

The following article is reprinted by permission from the editorial columns of the Fort Worth Star-Telegram *of October 2, 1947. Previously (April, 1947,* JOURNAL, *page 439) an editorial on hospital licensing was published from this same newspaper. The comment was made that the editorial writers on this paper seem unusually well informed on matters having to do with public health.—Editor.*

Buyers of insurance have been cautioned many times to read carefully all of the provisions of their policies—particularly those that appear in small type. They frequently are difficult to read and sometimes hard to understand because of their length and involved construction. Nevertheless, they should be read in their entirety, and preferably before the contract is accepted. It develops all too frequently when claims are filed that an obscure clause in the policy affords a legal loophole through which the insurance company can disclaim liability.

The advice to read all the fine print in insurance contracts seems to be especially pertinent in the case of hospitalization and medical care policies. This type of insurance has grown immensely popular in recent years. Millions of Americans have bought them; some have learned to their sorrow that their policies were not all that they thought them to be. Some have learned, too late, that conditions contained in their policies operated to deprive the insured of his free choice of hospitals or physician, or both.

Purchasers of this type of insurance would do well to remember that in Texas and in many other states, hospitalization and medical care policies are being offered by two different kinds of insurance companies, and that they operate under different sets of laws.

First, there is the so-called "old line legal reserve" company, which is in business for two commendable purposes: to render a needed service to the public and to make a profit for its stockholders. Such companies are subject to supervision by the state insurance regulatory body, and are required to set aside a specified portion of their assets in a legal reserve to assure their ability to pay promptly all just claims which may be filed against them. In Texas, such companies operate under Title 78 of the Revised Civil Statutes, the general insurance laws of the state.

Second, there is the so-called non-profit corporation, for group hospital service. Such corporations usually are formed by hospital administrators, trustees, directors or doctors, or combinations of these groups. On the theory that such corporations were to operate as a public service, rather than for profit-making, special enabling legislation was enacted in many states relieving them of the necessity of meeting the rigid standards of other forms of casualty insurance, and also exempting them from many taxes imposed on commercial insurance companies.

In Texas, this enabling legislation is Article 4590a, Title 71, of the Revised Civil Statutes. This law, passed in 1939 and amended in 1943, exempts such non-profit group hospital service corporations from the provisions of the state's general insurance laws. They are, however, subject to a degree of supervision by the state Board of Insurance Commissioners.

Section 5 of the Group Hospital Service Law provides: "That such (non-profit) corporations shall not contract to furnish to the member a physician or any medical service, nor shall said corporation contract to practice medicine in any manner, *nor shall said corporation control or attempt to control the relations existing between said member and his or her physician,* but said corporation shall confine its activities to rendering hospital service only through such types of hospitals with whom it has contracts, *without restricting the right of the patient to obtain the services of any licensed doctor of medicine.*"

Despite the clear language of this section of the law and the evident purpose of the Legislature in enacting it, purchasers of some policies being issued under the authority of the Group Hospital Service Law are in effect and in fact being denied their free choice of hospital and doctor in order to collect claims under their policies.

There was a case in one of the Tarrant County courts recently in which the purchaser of a policy issued by a Texas company had sued the company to force payment of a hospital bill.

Facts brought out in the case indicated the insurance company had stated it had no preference as to which hospital the insured might choose to patronize. But when a claim for hospital service was presented, the insurance company denied liability because of a clause somewhere in the policy which declared it could be used only in hospitals which were approved by members of the American Medical Association. The hospital which the patient chose is not approved by members of the AMA, but it is operated by physicians who are licensed by the State Board of Medical Examiners. The policy also contained the statement that the patient could be referred for therapy to other institutions, *provided that the referral was made by a doctor who was a member of the medical society.*

The effect of these conditions is to relieve the insurance company of liability unless the insured patronizes a hospital approved by a private agency, the American Medical Association, or is sent to a non-approved hospital by a doctor who is a member of the medical society. There are many reputable physicians and surgeons in Texas who are licensed to practice by the State Board of Medical Examiners who are not members of the AMA or its affiliated organization.

Another policy issued under authority of the Group Hospital Service Law of Texas which has come to our attention limits the insurance company's liability to hospital care rendered "on the authority of a physician or surgeon duly licensed by the State Board of Medical Examiners *and a member of his local county medical society or eligible for membership therein.*"

The effect of this provision is to make the policy worthless unless the insured chooses a physician or surgeon who is affiliated with the AMA.

It is understandable why a hospital service corporation, organized by members or affiliates of the medical association, would strive to limit their liability to services rendered by hospitals or physicians who are a part of that same organization. What is not so understandable is how, under Section 5 of the Group Hospital Service Law quoted above, they are able to get away with it. Section 7 of the same law provides that such corporations shall submit their "plan of operation" to the Board of Insurance Commissioners, and that it must be approved by the commission before the corporation can do business in Texas.

Some of the policies issued by commercial insurance companies in Texas also contain clauses which restrict the insured in the choice of hospitals. One such policy we have seen states in big, bold type that it "may be used in any accredited hospital in the world." The joker is in the word "accredited." Accredited by whom? In much smaller type it is stated the policy is good "in any hospital, anywhere, *approved by the medical society of the county or city wherein such hospital is located.*"

Why should a commercial insurance company, doing business with the general public, thus seek to discriminate against one legal, recognized and licensed school of medicine and in favor of another. What difference should it make to any

insurance corporation what hospital its policy holders patronize, so long as it meets the state's public health and sanitation requirements and is operated by physicians duly licensed by the State Board of Medical Examiners?

The only logical answer to these questions we can find is that the insurance company either is dominated by members of the medical profession, or that it is seeking to curry the favor of that profession.

It is a deplorable situation, and one that may well hasten the day of a tax-supported program of national health insurance. For the time being, the people can best protect themselves by reading carefully all of the small print in policies they are asked to buy, hunting for hidden jokers, and refusing to buy those containing clauses restrictive of the free choice of hospital or physician.

COMMITTEE ON SPECIAL MEMBERSHIP EFFORT

STEPHEN B. GIBBS, D.O.
Chairman
Coral Gables, Florida

LAST CALL FOR LISTING IN 1948 DIRECTORY

As of October 1, 1947 our membership enrollment was 8,068. This is again the "highest in history." Will we be able to make the same statement on January 1, 1948, and on June 1, 1948? We ask that question because you hold the answer. Once again we are facing our annual problem which is getting close at hand. There are still too many who have not yet paid their current A.O.A. dues. How many of them will fail to pay up and be dropped from membership this year? Most everyone says we should not have but a very small loss through nonpayment. We feel the same way, but there are still too many doctors in our profession who do not take their chosen means of livelihood seriously enough to become and remain members of the organization which protects their rights.

Don't let anyone neglect his obligation to his profession. The annual dues are little enough to pay for the service which helps protect you and your family. PAY DUES NOW.

Goal: 8,300 by June, 1948.

S. B. G.

MEMBERSHIP REPORT AS OF OCTOBER 1, 1947

Membership count, September 1, 1947		8,025
Applications received in May, 1947	46	
Graduates licensed	10	
Restored to Roll	1	
	57	
Deaths and Resignations in September, 1947	14	
Gain in September, 1947		43
Membership count, October 1, 1947		8,068

HONOR ROLL

Dr. Robert D. McCullough — Dr. C. A. Povlovich
Dr. Robert Morgan — Dr. Walter H. Siehl

Department of Public Affairs

BENJAMIN F. ADAMS, D.O.
Chairman
West Hartford, Conn.

BUREAU OF LEGISLATION

H. DALE PEARSON, D.O.
Chairman
Erie, Pa.

The right or privilege of practicing osteopathy is basically a grant of authority from the government. This grant of authority usually stems from an act of the legislature and very often is subject to varying interpretations by courts and administrative authorities. Recognizing the importance to osteopathic physicians of information concerning the legal aspects of the healing arts, the Bureau of Legislation has undertaken in this column to report news of pertinent legislative activity, court decisions and administrative rulings which come to its attention.

Since many of the rulings of administrative authorities are informal in nature and may not be brought to the attention of the General Counsel or the Bureau of Legislation in the natural course of events, it is hoped that the readers of the JOURNAL will keep the Bureau of Legislation, through the General Counsel, informed of legal matters which should be reported to all osteopathic physicians.

The reports appearing in this column are to be regarded merely as announcements of the existence of legal or administrative action in which the profession is interested. If a detailed analysis of any material discussed is required, it will be supplied upon request by the General Counsel's office in accordance with the following policy of the American Osteopathic Association, adopted by the House of Delegates in 1934:

> The American Osteopathic Association, its Central office, its departments, bureaus, and committees, shall provide information touching legislation and legal decisions to members of the Association, only with the consent of the proper authority of the divisional society in the territory in which the inquirer practices.

ABSTRACTS OF JUDICIAL OPINIONS

Prepared by Edmund Slack
Assistant General Counsel, A.O.A.

Violation of the Harrison Anti-Narcotic Act As a Basis for Revocation of License.—In a recent Arizona Supreme Court decision, it was held that a violation of the Harrison Anti-Narcotic Act was an offense involving "moral turpitude" within the statutory definition of unprofessional conduct for which a license to practice medicine could be revoked, *Garlington v. Smith*, 163 P. (2d) 685 (1945). Section 2559 of the Arizona Acts of 1928 reads:

> The words "unprofessional conduct" shall include . . . conviction of any offense involving moral turpitude, in which case the record of such conviction shall be conclusive evidence; . . .

At first reading, it would seem that this Act does not permit a physician to explain and qualify the circumstances surrounding conviction to show that he was not, in fact, guilty of conduct involving moral turpitude under any circumstances. However, in an earlier Arizona case the court clearly stated its interpretation of this Act as follows:

> The statute makes the conviction and the record thereof conclusive that the crime therein charged was committed, but such record is not made conclusive that the crime involved moral turpitude. It is for the court to determine that question . . .
>
> Just what crimes involve moral turpitude it is not always easy to say. Generally speaking, those crimes that are malum in se involve moral turpitude while those that are malum prohibitum do not. But this is not always so . . . the sale of narcotic drugs, except for medicinal use . . . does involve moral turpitude, although malum prohibitum only. *DuVall v. Board of Medical Examiners*, 49 Ariz. 329 (1937).

The court cited *United States ex rel Andreacchi v. Curran*, 38 F. (2d) 498 (1926), where an alien was charged with violating the Narcotic Act in that he trafficked in narcotics and failed to register as provided by the Act, and the court there said:

> A person might be punishable under the Act and not be guilty of moral turpitude, as, for instance, where there is a failure to comply with it, not because of any intention to furnish addicts with narcotics, but merely because of an oversight or lack of information regarding the statute, a conviction thereunder did not involve moral turpitude.

But this case must be distinguished from one involving a physician who comes with poor grace alleging ignorance of the law, for he is under a duty to know the law, both state and national, governing the dispensing of narcotics.

This Arizona judicial interpretation leaves open, in all cases, the opportunity for the physician to state his case before

the court so that it may determine whether or not his particular acts involved moral turpitude.

In a Wisconsin Supreme Court decision handed down recently in a case involving similar facts, *(State v. Willstead,* 21 N.W. (2d) 271.), but where the statute read:

> Sec. 147.20 (1) the words "immoral or unprofessional conduct" as used in this section mean . . . (f) conviction of an offense involving moral turpitude.

making no mention of the conclusiveness of the record of conviction as evidence, it was stated that a physician convicted under the Harrison Anti-Narcotic Act was not entitled to show that he was not guilty of conduct involving moral turpitude in his efforts to retain his license to practice medicine.

So that we have here an anomalous situation wherein the Arizona statute, although it would at first seem to bar a physician's right to explain away the stigma of the conviction under the Narcotic Act, as interpreted by the court, gives him the right to have the court determine if moral turpitude was involved; whereas, the Wisconsin Court, under a statute which did not provide that the record of conviction shall be conclusive evidence, holds that a conviction under the Narcotic Act is res judicata, in itself evidence of the individual's guilt of unprofessional conduct involving moral turpitude, and will not review the facts leading to the conviction.

To illustrate the diverse problems arising from an attempt to set up any general rules governing revocation of licenses for violation of the Harrison Anti-Narcotic Act we might point out the Tennessee Supreme Court opinion in *State Board of Examiners et al v. Friedman,* 263 S. W. 75 (1924), holding that the Board could not revoke a physician's license on the ground that his conviction and sentence to the Federal penitentiary for violating the Harrison Anti-Narcotic Act evidenced "moral turpitude." His acts, selling morphine contrary to Federal law to an incurable addict, constituted a felony under Federal law. The Tennessee Acts of 1919, however, permitted physicians to prescribe morphine to patients in "considerable quantities." The court held it was not, therefore, an illegal act in the state nor did it involve moral turpitude under state law. The court cited *Ex parte Marshall,* 207 Ala. 566 (1922), where the court defined moral turpitude as follows:

> . . . "moral turpitude" means "something immoral in itself, regardless of the fact that it is punishable by law." It must not merely be malum prohibitum, but the act itself must be inherently immoral . . . the mere violation of a revenue act (Federal Narcotic Act) . . . may not in and of itself constitute moral turpitude.

Many state statutes provide that conviction of a felony, whether under Federal, state or foreign law, is sufficient to support revocation of a license to practice medicine. Some hold that conviction of a felony in order to be grounds for revocation must be a felony under the laws of the state in which the physician is licensed. Other states revoke licenses under statutes which give as a basis for revocation an offense involving moral turpitude and the courts hold that violation of the Harrison Anti-Narcotic Act is evidence of "moral turpitude," where the law does not provide for revocation on the ground of a felony having been committed.

Criminal Liability for Unlawful Practice of Surgery.—In reviewing a manslaughter conviction against a chiropodist based on criminal negligence in administering sodium pentothal to a patient in reducing a dislocated shoulder, which caused his death, the Supreme Court of Wyoming granted a new trial stating that it is not important whether the person charged is a licensed physician or merely assumes to act as such, but the real question is the presence or absence of criminal negligence. It was stated that the defendant was guilty of practicing medicine without a license, since it appeared clear that a chiropodist under his license did not have authority to administer the drug, but it was pointed out that he was not charged here with the unlawful practice of medicine. The court said, this fact could, nevertheless, be considered by the jury in determining whether or not the defendant was guilty of criminal negligence.—*State v. Catellier,* 179 P. (2d) 205 (1947).

In England, the practice of medicine by those not licensed to so do renders them liable to certain penalties set forth in the statute but, as stated by Lord Hale, in 1 *Hale's Pleas of the Crown* 429; "God forbid that any mischance of this kind should make any person not licensed guilty of murder or manslaughter." It seems that this rule applies also in this country.

To render him criminally liable for the death of another resulting from acts performed outside the scope of authority granted the chiropodist by his license, it would be necessary to show, said the court in the *Catellier* case, citing 40 C.J.S., Homicide, 562, p. 926, "negligence of a gross or flagrant character, such as would show wantonness or recklessness, or would evince a reckless disregard of human life or the safety of others, or indifference to consequences, equivalent to criminal intent." A showing of ordinary negligence is not enough to support a charge of manslaughter. The State was required to prove criminal negligence, and it was error, therefore, for the lower court to refuse to instruct the jury that, "culpable negligence and criminal carelessness is much more than ordinary negligence."

Department of Public Relations

CHESTER D. SWOPE, D.O.
Chairman
Washington, D. C.

SCIENCE AND PUBLIC POLICY

On August 27, 1947, the President's Scientific Research Board presented to the President its report entitled "Science and Public Policy." The report consists of five volumes, as follows: Vol. I, entitled "A Program for the Nation," filed August 27, 1947; Vol. II, entitled "The Federal Research Program," filed September 27, 1947; Vol. III, entitled "Administration for Research," filed October 4, 1947; Vol. IV, entitled "Manpower for Research," (not yet filed); Vol. V, entitled "The Nation's Medical Research," (not yet filed).

A PROGRAM FOR THE NATION

This volume indicates that the full report will urge:

"1. That, as a Nation, we increase our annual expenditures for research and development as rapidly as we can expand facilities and increase trained manpower. By 1957 we should be devoting at least 1 per cent of our national income to research and development in the universities, industry, and the government;

"2. That heavier emphasis be placed upon basic research and upon medical research in our national research and development budget. Expenditures for basic research should be quadrupled and those for health and medical research tripled in the next decade, while total research and development expenditures should be doubled.

"3. That the Federal government support basic research in the universities and nonprofit research institutions at a progressively increasing rate, reaching an annual expenditure of at least $250,000,000 by 1957.

"4. That a National Science Foundation be established to make grants in support of basic research, with a Director appointed by and responsible to the President. The Director should be advised by a part-time board of eminent scientists and educators, half to be drawn from outside the Federal government and half from within it.

"5. That a Federal program of assistance to undergraduate and graduate students in the sciences be developed as an integral part of an overall national scholarship and fellowship program.

"6. That a program of Federal assistance to universities and colleges be developed in the matters of laboratory facilities

and scientific equipment as an integral part of a general program of aid to education.

"7. That a Federal Committee be established, composed of the directors of the principal Federal research establishments, to assist in the coordination and development of the government's own research and development programs.

"8. That every effort be made to assist in the reconstruction of European laboratories as a part of our program of aid to peace-loving countries. Such aid should be given on terms which require the maximum contributions toward the restoration of conditions of free international exchange of scientific knowledge."

According to "A Program for the Nation" the total private and government research expenditures in 1930 were $166,000,000; in 1940 $345,000,000; in the 4 years 1941-45 $3,000,000,000; in 1947 budget estimates, $1,100,000,000. In 1930 expenditures by universities amounted to $26,000,000, or 12 per cent of the national research and development budget. In 1940 expenditures by universities and nonprofit research institutes were $42,000,000, but the proportion had fallen to 9 per cent.

The government, industry, universities, colleges, and research institutes are in dire need of scientific manpower. The situation in the universities and the colleges is worse because of their unfavorable financial and salary positions. Instructional salaries, traditionally low, have increased only between 20 and 30 per cent since 1940 while living costs have increased nearly 60 per cent. Two-thirds of all college and university science professors and instructors received salaries under $4,000 per year in 1946.

Looking toward a balanced program, the report states:

"Our present research and development program is unbalanced in these three respects:

"We are devoting too small a proportion of our total resources to basic research;

"We are devoting too small a proportion of our total research and development resources to health and medicine;

"We are devoting too small a proportion of our development resources to non-military ends.

"These deficiencies in our present program should be corrected as rapidly as possible so that by 1957 we will be spending, as a Nation:

"At least four times as much as at present on basic research;

"At least three times as much as at present on research in health and medicine:

"At least twice as much as at present on non-military development."

With regard to medical fields, it is stated:

"The rapid expansion of research and development in health and medicine is a matter of great urgency to our people. This has been reflected in increasing Congressional interest and in rising public expenditures.

"Moreover, the discovery of nuclear fission and the large scale production of radioactive isotopes by the Atomic Energy Commission opens up whole new vistas for medical research. As the Commission has pointed out in a recent report, 'The value of isotopes in research has been compared to the utility of the microscope. Thus, as the microscope opened new fields of scientific endeavor, so will radio-isotopes further expand the vista of fundamental knowledge.'

"Research and development in medical and allied sciences, like basic research, seldom yield direct financial returns. Its financing must, therefore, largely depend upon either charitable gifts or tax funds. Neither the medical schools nor the foundations are likely to be able to increase their own expenditures greatly in the next 10 years. The expansion in medical research here recommended can be accomplished only by raising our Federal expenditures from their current level of $28,000,000 to at least $200,000,000 by 1957. It is impossible to calculate the benefits of such a program in terms of the improved health and productivity of our people. But there is no doubt that the investment will be repaid many times over.

"The importance of increased research and development in health and medicine to our national well-being is so great that a special report is being submitted on this subject. A national program for medical research should be a prominent part of a National Health Program, as already urged by the President."

THE FEDERAL RESEARCH PROGRAM

This volume reviews the details of the government's scientific work, agency by agency, and discusses typical projects.

Among those described are the research projects of the Civil Aeronautics Administration. With regard to research on personnel, investigations are performed by the Research Division and the Aviation Medical Service of the Office of Safety Regulation. Four projects in aviation medicine were undertaken during 1946-7 by CAA personnel and the Committee on Medical Problems of the National Research Council at a cost of $41,400. According to the report:

"All background investigations are aimed chiefly at establishing standards for pilot and crew member ability and performance. They are within the jurisdiction of the Aviation Medical Service of the Office of Safety Regulation which, in addition, operates a medical facility and laboratory at Oklahoma City. This facility will concentrate, in the near future, on physical standards and training of medical examiners. In the long run, it will explore the three phases of aviation medicine peculiar to civilian flying: medical standards (physical and mental), medical criteria for aircraft design, and physiological factors of operation."

Discussing the medical program of the U. S. Atomic Energy Commission the report states:

"In striving to advance knowledge into the unknown regions of nuclear fission, the Commission is confronted with two broad responsibilities in the field of health. One is to make available with all possible speed the beneficial factors already known to emanate from nuclear radiation and to give every encouragement to fundamental research with living matter which will expand those benefits. On the other hand, great care must be taken in the production and utilization of these beneficial tools because all of the deadly qualities and effects on human beings of nuclear fission are not yet known.

"Research must go forward on two fronts simultaneously, therefore, with scientists searching for both the life-saving and death-dealing qualities in the radioactive atoms.

"Plutonium, for example, is not only radioactive, but it is also toxic from a biochemical standpoint. Neutrons, gamma rays, and other dangerous rays are cast off in great abundance from the nuclear chain reactors.

"To discover just how dangerous those radiations may be and what protective measures should be taken to safeguard employees, teams of physicians, biologists, chemists, and physicists have been at work since the inception of the atomic energy project. The search for answers to those questions has been handicapped by a shortage of scientific and technical personnel competent in the field of atomic health physics.

"The outstanding safe working conditions in the Commission's laboratory today provide an adequate illustration of the success the researchers have achieved in phase of their assignment, but too much remains unknown about the full effects of exposure to atomic radiation and the methods of halting its destructive action on human tissue and cells.

"A Medical Board of Review composed of seven men of outstanding qualifications in the field of medical research was appointed by the Commission to review the complex problems presented in the field of medicine and health physics. On the basis of their recommendations, a medical program is being developed.

"This board urgently recommended rapid expansion of the Nation's complement of physicians and health physicists trained in the atomic energy field. The Board suggested that this expansion might be speeded by providing substantial aid to universities training such specialists and to the trainees themselves. It urged provision for definite careers in this field. The Board further recommended that assistance be given the training programs undertaken by the armed forces in this field.

"The Commission has appointed an Advisory Committee for Biology and Medicine to assist it in formulating policies which would carry out recommendations of the Medical Board of Review."

ADMINISTRATION FOR RESEARCH

According to Vol. III of the report, there are in Federal establishments, 30,000 government scientists, exclusive of military personnel, using facilities and equipment worth $2,000,000,000. Of this number 1,989 are biological or medical scientists.

Commenting on the Research Grant Program of the Public Health Service, the report states:

"These grants are designed to encourage research in medical and allied fields by supporting specific investigations that would not otherwise be undertaken for lack of funds. Grants may not be substituted for existing projects or used to relieve a university or foundation of financial responsibility for research or teaching. Such funds may, however, be used to pay for loss of teaching time if a substitute is required to release the individual for research. This is particularly important for university teachers, since many must do their research in addition to regular teaching.

"Applications for grants are processed by the Research Grants Division of the National Institute of Health and passed on by members of appropriate study sections, which comprise experts from more than twenty fields. Afterward, they are submitted to a national advisory council. The National Advisory Health Council recommends on all research grants except those in the field of cancer and mental health which are referred, respectively, to the National Advisory Cancer Council or the National Mental Health Council. The Health Council consists of 14 members, 10 nongovernment scientists, and 4 government experts—the Director of the National Institute of Health and a representative each from the Army, the Navy and the Bureau of Animal Industry. The Cancer Council consists of 6 scientists in this field, with the Surgeon General as chairman. The Surgeon General also chairs the 6-member Mental Health Council.

"Up to October 1946 a total of 264 projects had been authorized at a cost of $3,900,000. Grants are paid in full at the beginning of the fiscal year and may be supplemented; simple financial reports are required semiannually. Administration is directed toward giving the greatest amount of freedom to the researcher by reducing necessary controls to an absolute minimum. This is in keeping with the practice of private research foundations.

"*Fellowships.*—The current and prospective demand for scientists is so heavy, and the cost of advanced scientific education so great in relation to average family income, that Federal aid to students must be supplied if research in the coming years is to be on the scale dictated by the national interest. The form that this assistance should take, and the other complex problems that arise in a field where experience is limited, are being investigated by the President's Commission on Higher Education.

"Meanwhile, however, the National Institute of Health is administering a program that is in effect a test-tube demonstration of the values to be expected from and the problems involved in direct Federal financial aid to advanced students.

"The National Institute of Health is authorized by the Public Health Service Act to administer a fellowship program aimed at developing research workers in medical and related fields.

"Individuals with postgraduate work in recognized institutions of medical and such related sciences as biology, chemistry, physics, public health, and dentistry are eligible. Fellowships are good for 1 year and may be renewed for a second year.

"Junior research fellowships are available to individuals with masters degrees or their equivalent and provide $2,400 a year. Senior research fellowships are available to individuals with doctors degrees and provide $3,000. Currently 130 individuals are training under this program. Plans are being made also to provide $1,800 fellowships to individuals with B.S. and A.B. degrees.

"The research grant and fellowship program is a significant step toward supporting the combined training and research work of many promising young scientists whose talents otherwise would be lost through their lack of funds.

"The original cost is small in terms of the dividends. The Federal government's entire research effort affords no programs of greater potential promise than this fellowship system founded on the proved and tested experience of private science foundations."

With regard to a National Science Foundation the report says:

"It is urged that the Congress establish a National Science Foundation within the administrative framework of the Federal government. It should be located within the Executive Office of the President until such time as other Federal programs in support of higher education are established. At such time, consideration should be given to grouping all such activities—including the National Science Foundation—in a single agency. The Board of the Foundation might well consist of part-time members appointed by the President, and the Director of the Foundation should be similarly chosen. Half the membership should be drawn from the personnel of Government agencies with a major role in scientific research and development, and half from among the most eminent scientists and educators outside of the Government."

Specific recommendations outlined in the report are:

"1. Establishment of an Interdepartmental Committee on Scientific Research and Development.

"2. Creation of a unit in the Bureau of the Budget to review Federal scientific and research development programs in relation to total government activity.

"3. Designation of a member of the White House staff by the President for scientific liaison inside and outside the Government.

"4. Establishment of a National Science Foundation along sound administrative lines."

PUBLIC HEALTH SERVICE REPORTS RESEARCH AWARD TO K.C.O.S.

Public Health Service awards for basic medical research have totalled $10,214,174 during the past 20 months, according to a report made public October 1, 1947, by Oscar R. Ewing, Federal Security Administrator. Six hundred twenty-nine scientists in 193 institutions shared in these grants, as listed in the report to the Administrator by Dr. C. J. Van Slyke, Chief of the Division of Research Grants and Fellowships of the National Institute of Health, Public Health Service, Federal Security Agency.

Launched in late 1945, this Federal program is planned and directed by 250 of the nation's top civilian scientists for the purpose of producing the research which they consider most essential to the improvement of the nation's health.

The awards reported today were made between January 1, 1946, and September 15, 1947. They supported research projects in 97 universities and colleges and in 34 hospitals and clinics. An additional 62 research grants were made to foundations, sanatoriums, health departments and individuals.

Aside from specifying that the research grant funds may not be used to relieve an institution from its ordinary teaching, administrative, or research responsibilities, wide latitude is allowed the responsible scientific investigator in the use of research grant funds, Dr. Van Slyke reported.

Recipients of awards are given complete freedom to conduct projects in whatever ways they choose and are not subject to any governmental review. Projects in cancer and in mental hygiene are passed on by the National Advisory Cancer Council and by the National Advisory Mental Health Council, respectively. All other awards are made upon recommendations of the National Advisory Health Council assisted by study sections composed of groups of scientists in the major categories of medical research.

In discussing the awards, Dr. Van Slyke pointed out that, because the program is under the leadership of the nation's leading scientists, the projects they select as worthy of support from tax funds afford a clue both to new cures which may soon become available and to the medical needs considered most urgent by this body of experts. As illustration, he called attention to the fact that the largest sum, $1,669,793, was awarded for venereal disease research.

"Use of penicillin in treatment of syphilis, which was the subject of most of these projects, has brought us closer to victory over this disease," he declared. "We need only a

few more answers to give us the power to stamp out venereal disease entirely."

Conversely, he reported, the granting of the second highest sum, $1,241,510, for research on cancer and the third highest sum, $703,187, for research on heart disease and other cardiovascular illness, is an index of urgent need rather than of hope of immediate cure.

"More persons die from these than from any other type of disease," he explained. "If only one of the 145 projects being financed in these fields produces results, it could mean the saving of thousands of lives."

Selection of nutrition and biochemistry projects for the fourth largest investment, $682,358, reflects scientific opinion that the correction of dietary deficiencies would prevent many illnesses as well as provide cures for specific types of disease.

That the scientists share the layman's interest in being relieved of maladies which seldom kill is indicated by the allocation of $133,453 for seven research projects on prevention and cure of common colds and of $135,607 for 25 dental projects.

Broken down into major categories of medical research, the total amounts and total number of projects are as follows:

Antibiotics, 27 projects, $249,698; bacteriology, 43 projects, $445,689; biochemistry and nutrition, 49 projects, $682,358; cancer, 114 projects, $1,241,510; cardiovascular, 31 projects, $703,187; dental, 25 projects, $135,607; gerontology, 11 projects, $213,172; hematology, 33 projects, $498,833; malaria, 21 projects, $543,208; mental health, 28 projects, $276,127; metabolism and endocrinology, 30 projects, $267,359; pathology, 21 projects, $176,545; pharmacology, 30 projects, $313 779; physiology, 52 projects, $676,836; public health methods, 9 projects, $125,843; radiology, 16 projects, $392,399; rodent control, 2 projects, $17,120; sanitation, 25 projects, $202,545; surgery, 16 projects, $159,910; syphilis, 46 projects, $1,669,793; tropical diseases, 20 projects, $352,987; tuberculosis, 19 projects, $360,113; virus and rickettsial, 31 projects, $509,556.

Most of the institutions applying for research funds are located in densely populated areas since these are the places where research equipment is concentrated. However, 36 States, as well as Alaska, Australia, Canada, Colombia, Guatemala, and Philippine Islands are the site of some of these projects. The complete list followed. [Under Missouri was listed the Kirksville College of Osteopathy and Surgery with a grant of $6,119.]

HIGHER STUDENT FEES EXCLUDE MANY FROM COLLEGES U. S. OFFICE OF EDUCATION SURVEY SHOWS

Despite a steadily increasing demand for higher education, a trend which became more apparent more than 50 years before World War II, student fees have increased to such an extent that many intellectually capable young people are unable to attend college. Dr. John Dale Russell, Director of the Division of Higher Education, United States Office of Education, Federal Security Agency, made this statement October 7, 1947, in commenting on trends indicated in a recent Office of Education survey conducted at the request of the President's Commission on Higher Education.

The cost of college attendance has risen, and a large part of this higher cost is now met by student fees, more than 50 per cent of which are paid today by the Federal Government through provisions for veterans' education, Dr. Russell added. "The cost of going to college will be too high for many family budgets, if student fees continue to go up and if no provision is made for increased financial support from other sources after the G. I. legislation expires," he said. "More and more," Dr. Russell said, "this trend will limit college education to children of higher-income families—a counter-democratic tendency."

These outstanding developments were apparent from the Office of Education survey:

1. Student fees, which in previous years have paid about a third of the total annual expense bill of the colleges, now provide for more than half of the total annual college educational expenditures. Of this amount, collected as student fees during the current fiscal year, the Federal Government paid more than half, or over $300,000,000.

According to Dr. Russell, the colleges have become increasingly dependent upon student fees as their chief flexible source of income to meet rapidly increasing costs of providing higher education. Costs have increased because of the necessity of serving record enrollments. The inflationary factor in the increased educational and general cost to the colleges is estimated to be only 24 per cent, much less than the national average increase in the cost of living.

Income from student fees in 1940 provided over $200,000,000, or 38.5 per cent of college expenditures. During the past school year, according to the survey, income from fees was more than $565,000,000, or 56.2 per cent of college expenditures.

2. The rate of tuition charges to students, not including board and room, has been steadily increasing over a long period. According to the U. S. Office of Education survey, the increases have been particularly marked since 1939.

For example, in privately controlled institutions in the past 7 years, the average tuition fee for colleges of arts and sciences has increased 29.3 per cent, for engineering colleges 32.8 per cent, and for schools of dentistry 56.1 per cent. In publicly controlled colleges and universities, the average tuition fee for residents of the State has increased 31.4 per cent in schools of business administration, 45.5 per cent in graduate schools, and 56.3 per cent in law schools. Public junior colleges have increased their tuition fees for residents 40.9 per cent and for nonresidents 80 per cent.

Pointing out that the rate of income from college endowment investments has steadily diminished, Dr. Russell said: "Additional gifts from philanthropic sources could not be obtained as rapidly as enrollments have increased. Privately controlled colleges have therefore been forced to increase their rates of tuition for students in order to maintain services at the usual standards of quality. In publicly controlled institutions, the income from State and local governments has not increased proportionately to the growth of enrollment. Therefore, public institutions have also been forced to increase the rate of student fees in order to support a program of standard quality."

At the request of the President's Commission on Higher Education, the Office of Education surveyed representative colleges offering fields of study in which heaviest enrollments are found: dentistry, engineering, law and medicine. The survey covered, in addition, colleges of agriculture, arts and sciences, business administration, and education, as well as liberal arts graduate schools and junior colleges.

PUBLIC HEALTH SERVICE RESEARCH FELLOWSHIPS

New and more liberal eligibility requirements for United States Public Health Service research fellowships were announced October 2, 1947, by Dr. Thomas Parran, Surgeon General, Public Health Service, Federal Security Agency, as part of the national program to secure the increased number of trained scientists urgently needed for essential research.

The fellowship program, inaugurated in late 1945, was formerly limited to students with Master's degrees, but will now be open to holders of Bachelor's degrees, Dr. Parran reported. In addition to tuition fees those with Bachelor's degrees will receive stipends of $1,200 if they have no dependents, $1,600 if they have dependents.

Stipends for fellows with higher degrees have been changed and are now as follows: for holders of Master's degrees—tuition fees plus $1,600 for persons without dependents, $2,000 for persons with dependents; for holders of Doctor's degrees—$3,000 for persons without dependents, $3,600 for persons with dependents.

Special fellowships can be awarded to holders of Doctor's degrees who have also demonstrated outstanding ability or who possess specialized training for a specific problem. The amount of these stipends varies with the individual case.

All fellowships awarded are for 1 year but may be renewed.

Application for fellowships are passed upon by the Central Qualification Board and subsequently by one of several Specialty Fellowship Boards representing most of the sciences. To obtain a fellowship, students must fill out application

forms, available at the National Institute of Health, Bethesda, Maryland, and submit the form, along with transcripts of scholastic records and letters of recommendation, to the Division of Research Grants and Fellowships, National Institute of Health, Bethesda, Maryland.

NEW MEMBERS OF FEDERAL HOSPITAL COUNCIL

Three new members of the Federal Hospital Council, established last year to assist Surgeon General Thomas Parran of the U. S. Public Health Service in the administration of the hospital survey and construction program, were announced September 26 by Federal Security Administrator, Oscar R. Ewing.

Nelson Cruikshank, director of social insurance activities of the American Federation of Labor, Washington, was appointed to fill the unexpired term of Clinton S. Golden, also of the A. F. of L., who resigned to serve as labor advisor to the American Mission for Aid to Greece.

Dr. James A. Paullin, Professor of Clinical Medicine, Emory University, Atlanta, Georgia, and former president of the American Medical Association and American College of Physicians, will succeed Mrs. Evelyn Hicks of Birmingham, Alabama, whose 1-year term has expired.

Joseph W. Fichter, Master of the Ohio State Grange, Columbus, Ohio, will succeed Melville G. Broughton, former governor of North Carolina, whose appointment has also expired.

Book Notices

OUTLINE OF THE SPINAL NERVES. By John Favill, A.B., M.D., F.A.C.P., Clinical Professor of Neurology (Rush) University of Illinois College of Medicine Attending Neuropsychiatrist, Presbyterian Hospital, Chicago. Cloth. Pp. 191, with illustrations. Price $3.75. Charles C. Thomas, Publisher, 301-327 E. Lawrence Avenue, Springfield, Illinois, 1946.

This is one of those delightfully explicit texts that appear every so often. It is complete as far as its subject matter goes and is presented in a style that makes it readily accessible in a hurry. For the student in the basic sciences it is fine, and, for the neurologist, it is a daily guide. For the practitioner with an occasional nerve case, it is a reference book. To osteopathic physicians interested in postural problems, the book will give nerve and muscular origins, connections and functions in a few moments where ordinarily such information would require much library searching.

Part One of the work is devoted to "Roots—Nerves—Muscles" in that order; Part Two to "Nerves—Muscles—Roots" in that order. There are included here brief notes of possible etiologic factors and symptomatic results of lesions in the various nerve distributions. Part Three covers "Muscles—Roots—Nerves," with origins, insertions, functions, tests, and paralytic effects. Part Four is concerned with "Movements—Muscles—Nerves—Roots." It outlines the muscles in two groups for each movement, those making the principal contribution to a movement, and those acting in an accessory capacity. Part Five is a collection of supplementary data and charts. There are diagrams of the various plexuses and tables of clinical syndromes. There is a section on electrical testing of nerves and muscles, an epitome of causalgia and a table of the causes of neuritis and neuropathy. Then comes a list of the etiologic factors in low back and sciatic pain (which, despite the completeness of the data, fails to mention the osteopathic lesion or spinal subluxations). The book closes with a series of drawings showing the distribution of the various spinal nerves.

The reviewer was greatly impressed with this little work and cannot commend it too highly.

THOMAS J. MEYERS, M.A., D.O., F.A.C.N.

FUNDAMENTALS OF PSYCHIATRY By Edward A. Strecker, M.D., Sc.D., LL.D., Litt.D., F.A.C.P. Professor of Psychiatry and Chairman of the Department, Undergraduate and Graduate Schools of Medicine, University of Pennsylvania; Psychiatrist to the Pennsylvania, Philadelphia and Germantown Hospitals; Consultant and Chief-of-Service, Institute of the Pennsylvania Hospital; Consultant to the Surgeon General, U. S. Navy; Formerly Consultant for the Secretary of War to the Surgeons General of the Army and the A.A.F.; Senior Consultant in Psychiatry, Veterans Administration; Consultant in Mental Hygiene, U.S.P.H.S.; Chairman, Committee on Psychiatry, National Research Council; Chairman, Committee on Psychiatry, American National Red Cross. Ed. 4. Cloth. Pp. 325, with illustrations. Price $4.00. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia, 1947.

This is a new edition of a short treatise on psychiatry that came out during the war. It is an attempt to relate psychiatry to general medicine, presumably to broaden the psychiatric facilities available to the general public. The author calls attention to this need in his preface to the fourth edition by noting that not more than 3,500 qualified psychiatrists are available now, whereas the needs call for a minimum of 10,000. He emphasizes, in this connection, that the majority of neuropsychiatric problems are concerned with the ever-increasing number of psychoneuroses—often with psychosomatic accompaniments.

The fourth edition shows a number of changes over previous editions, eliminating some of the objections. These largely consist of restatements—making for greater clarity of the points under discussion. In addition, a chapter on psychosomatic psychiatry is included.

The author holds close to his stated purpose of relating psychiatry to medicine and devotes 121 pages of the book's 325 to descriptive material, discussion of concepts, examination methods, etiologic and classification theories, and definitions. There follows 107 pages on the psychoses, including hysteria, twenty pages on the psychoneuroses, five pages on mental deficiency and constitutional psychopathy, and a chapter of eight pages on psychosomatic medicine. The chapter on war psychiatry is a carry-over from earlier editions and covers the war neuroses and rehabilitation technics. The book is closed with a chapter on psychiatric nursing and a glossary.

In many ways, this is a desirable volume. Its compactness, easy style, and specific recommendations make for easy reference. But it is a book for a busy physician rather than the student. One great lack is the absence of a bibliography. It is not a good text for classroom use because of its practical format and limited discussions. But the data presented is authentic and acceptable in terms of modern psychiatric concepts, and it may be relied upon. It may be recommended to the general practitioner on this basis.

THOMAS J. MEYERS, M.A., D.O., F.A.C.N.

EVERYDAY PSYCHIATRY. By John D. Campbell, M. D., Commander, M.C., U.S.N.R.; Chief Neuropsychiatrist, U. S. Naval Base Hospital No. 8; Formerly Chief Neuropsychiatrist, U. S. Naval Hospital, Charleston, S. C., and Visiting Lecturer in Psychiatry, Medical College of South Carolina; Diplomate, American Board of Neurology and Psychiatry. Cloth. Pp. 333. Price $6.00. J. B. Lippincott Company, 227 S. Sixth St., Philadelphia, 1947.

The author of this book makes claim for originality in his preface, "My foundation in medicine was that of a general practitioner. . . . It was with this background that I undertook the study of neurology and psychiatry. . . . Each day I was fascinated by psychiatric patients, analysis of whose personalities explained many enigmas in my former practice. . . . Thus I began to save notes, search the literature, and study patients. . . ." His approach is epitomized in the statement "Too often in psychiatry, as in medicine and surgery, we scrutinize the severe cases in detail but overlook the more common, milder conditions which are of greater practical importance to the physician in his office. . . In actual practice it is the mental defective, the psychopath, and the psychoneurotic who demand our attention." Again, the author gives the key to his book in, "The essence of this book is that human nature expresses itself through four basic personality traits and two secondary personality factors. . . . The four basic personality factors are intelligence, conscience, emotional reaction, and psychosexual development. . . . These traits are inherited, constitutional, and immutable and are not subject to change by environment. . . . Secondary to these . . . are two other factors, not directly inherited and constitutional. . . . These are sociability and special modes of adjustment."

His application of this principle, in explaining psychiatric situations, is something like this, "Likewise with itching of the skin. It would seem more logical to connect this symptom with an endocrine—autonomic disturbance, rather than with 'martyr-like' scratching of himself instead of someone else. In short, it is difficult, in a practical consideration of psychiatry, to entertain ideas that draw too much upon one's imagination." He further elaborates upon the practical aspects of his theories throughout the book. His treatment of psychopathic personalities, for example, is illustrated as follows: "First, determine that which was provided by nature (by examination). . . . Impaired conscience is a relative defect, and its degree should be determined. . . . Suppose we find our psychopath has an I. Q. of 115. The individual must be trained for a type of work which would utilize that degree of intelligence. . . . Our psychopath's conscience will require much training and conditioning, and he will never be able to rely entirely upon himself. His emotional stability will require special modes of adjustment. . . . The psychosexual development must be closely studied and certain balancing influences instituted. Thus the treatment consists of first knowing the patient thoroughly and educating him to live, always keeping in mind that every asset must be utilized and every inadequacy met by an acceptable compensation."

Four chapters are devoted to a discussion of the psychoneuroses, and in addition, one to homosexuality, and one to chronic alcoholism. The author truly keeps to his promise of writing a book on the practical aspects of office psychiatry. While crediting Freud with many of the discoveries leading to modern psychiatric practice, he says of psychoanalytic mechanisms, "All of these interpretations make interesting explanations of the psychologic processes of the patient, but they are neither basic nor etiologic."

One chapter is devoted to schizoid personalities and one to cycloids. He advocates special educational facilities for schizoids, with particular effort to bring out each individual's potentials. Of the alcoholic, he says, "Success in treatment will be greater in inverse proportion to the psychopathic and introverted traits which are present . . . the object of the treatment is to train the patient not only to live without alcohol but to mature emotionally."

The book is closed by a chapter on personality examination and one on rehabilitation.

Regardless of one's disagreement with the author's theories, one must acknowledge that the book is written with the practical problem clearly in mind, and has incorporated within it a sincere effort to provide a workable attack upon the many psychiatric conditions encountered in doctors' offices. That the author is not entirely free of bias is evident, for example, by the statement, "Chiropractic, faith healing, offbrand religions, clairvoyancy, and Christian Science, are other substitutive devices used by the neurotic to patch up defective constitutional attributes." However, he has tried to be original and criticizes other groups, such as psychoanalysts as strongly.

It is questionable whether the author's basic concepts will hold up under scrutiny, but, at any rate, he has given the general practitioner a text written in a language he can understand.

THOMAS J. MEYERS, M.A., D.O., F.A.C.N.

APHASIA: A Guide to Retraining. By Captain Louis Granich, U.S. Army Medical Administration Corps. Cloth. Pp. 108. Price $2.75. Grune & Stratton, Inc., 443 Fourth Avenue, New York, 1947.

This is another work that is an outgrowth of services developed during the war. It is comparable in value to the work of McKenzie with brain-damaged cases after the first war in England. The author here, however, has the advantage of 25 years of advanced study on the nature of brain function. He quotes Kurt Goldstein frequently, and has borrowed heavily from him, but apparently has overlooked the work of McKenzie and Franz.

The first part of the book is a concise and clear differentiation of the different forms of aphasia. He divides the condition into five groups, namely: typical speech disabilities, receptive aphasia, alexia, and related reading disorders, agraphia and related writing disorders, and arithmetic syndromes. These five groups are in turn subdivided into fifteen smaller classifications. Each condition is discussed in practical terms with notes as to the prognosis in each. He also gives directions for making clinical examinations in order that the differentiation may be made easily.

The next section of the book deals with retraining principles and technics. These, again, are practical. He poses the question as to whether the results of this work are worth the time and effort expended. He answers his own question by saying: "We should never forget that we are dealing with young men crippled for life by the impairment of man's most precious capacity, the power of mind, while serving their country and fellowman."

He stresses the importance of motive and a willingness on the part of the patients to help themselves. He even advocates the development of compulsive-obsessive habits of work in those who are brain-damaged. This is to be contrasted with a ritualistic form of training, which is useless. Of no small importance is psychotherapy along with the retraining.

The next section of the book is possibly of the greatest value to the average physician. It deals with the general defects in brain injury and does it well. He shows that there are personality changes that occur as well as the neurological, and that post-traumatic neuroses are really based upon infantile behavior patterns. He differs with Freud by criticizing Freud's neglect of the role of the physical environment in infantile experiences. These cases show obsessive-compulsive tendencies frequently, which he holds are rational compensations for forgetfulness and difficulty in concentration. He includes the Rorschach findings in his discussion and emphasizes the value of the test. He illustrates Goldstein's abstract-concrete thinking concept and shows how it is clinically demonstrated.

The book closes with the details of treatment of six aphasic cases.

The outstanding feature of this little monograph is its simplicity. One cannot help but feel that the author has the "understanding" of these patients that he advocates in their treatment. This need is emphasized as follows: "Reassurance poured out in heavy doses will be met with skepticism unless the patient perceives in his therapist a real grasp of his difficulties and his experiences." This comment is applicable to the treatment of any human problem.

Osteopathic physicians will find the book useful not only in the differentiation of speech conditions, which is a highly specialized matter, but, also as a guide in diagnosing the organic brain lesions that are so common in general practice. All physicians should read this book.

THOMAS J. MEYERS, M.A., D.O., F.A.C.N.

CORRECTION

Wilbur V. Cole, Kirksville, Mo., is chairman of the Committee on Convention Scientific Exhibits. His name should have appeared on the Roster, page 97 of the September JOURNAL, instead of that of Grover C. Stukey.

We regret the error.

GRADUATE COURSES OFFERED

College of Osteopathic Physicians and Surgeons (Los Angeles).—Four courses offered: *Eye, Ear, Nose and Throat,* January 5-16, 1948; *Laboratory Surgery,* January 19-February 13, 1948; *General Medicine,* February 23-March 19, 1948; and *Cardiology,* April 5-16. Write to Edward T. Abbott, D. O., Dean of the Graduate School, 1721 Griffin Ave., Los Angeles 31, Calif.

Kirksville College of Osteopathy and Surgery.—*Hypertensive Heart Disease,* January 8, 1948; *The Herniated Disc,* February 5, 1948; *Endocrinology,* March 4, 1948; *Eye, Ear, Nose and Throat Problems,* April 1, 1948.